

# ARTICLES

## SEARCHING FOR THE LONG-BILLED MURRELET ON HOKKAIDO ISLAND, JAPAN

S. Kim Nelson, Koji Ono, John N. Fries, and Thomas E. Hamer

The Long-billed Murrelet (*Brachyramphus perdix*), a small alcid of the northwestern Pacific, and its former conspecific, the Marbled Murrelet (*Brachyramphus marmoratus*; American Ornithologists' Union 1997), have long been recognized as "enigma(s) of the Pacific" (Guiguet 1956) because details about their breeding biology remained a mystery for more than a century. While extensive research has been conducted on the biology of *B. marmoratus* during the last 10 years (see Ralph et al. 1995, Nelson 1997), only limited opportunistic information is available on the distribution, abundance and habitat associations of *B. perdix*. Because of a variety of potential threats to the Long-billed Murrelet in Japan, including habitat loss and oil spills (e.g., Helm et al. 1997), determining its breeding status and habitat use will be important for future management and conservation of this species. Herein we describe our recent efforts to learn more about the inland habitat use of this elusive species in northern Japan.

At present, the general breeding distribution of the Long-billed Murrelet is described as extending from the Kamchatka Peninsula and Komandorski Islands (Russia) in the north, southward through the Kuril Islands, along the north and west coasts of the Sea of Okhotsk (Magadan to Sakhalin Island, Russia), south to Hokkaido Island, Japan, and south and east along the coast of the Primorye Region (Primorski Krai) and the Sea of Japan to Vladivostok, Russia (Konyukhov and Kitaysky 1995, Nel-

son 1997). Available information suggests that its breeding range is primarily determined by the distribution of taiga forest in coastal areas of the region (Kistchinski 1968). In Russia, five nests are known in coniferous and mixed forest within 30 km of the coast. One ground nest was found on an open scree slope in mixed coniferous/broad-leaved forest at 700 m in elevation and 30 km inland in the mountains above Shelikhova Bay, near Magadan (A. Kistchinski unpublished data). Four tree nests were found in *Larix gmelini* (Dahurian larch) trees in taiga forests up to 12 km inland near the cities of Magadan and Okhotsk, on Sakhalin Island, and at Olga Bay on the Primorye coast, 274 km north of Vladivostok

Amur River (flows into Tatarski Strait near Sakhalin Island).

There are only a few observations that suggest breeding by Long-billed Murrelets in Japan. A ground nest with three eggs was reported from Mt. Mokoto (Mokoto-yama) in 1961, 24 km inland on Hokkaido Island (Brazil 1991, Konyukhov and Kitaysky 1995), but it was later discovered that the eggs had been misidentified. Interestingly, an adult murrelet, supposedly attending this nest, was shot and collected in 1961 and later confirmed to be a Long-billed Murrelet. Recent (1980's and 1990's) sightings of hatch-year birds in the Sea of Okhotsk just north of Mt. Mokoto (Brazil 1991) and along the northwest coast of the Shiretoko Peninsula (M. Matsuda, Y. Fukuda pers. comm.) have also been reported.

After discussions between Japanese and American Pacific Seabird Group biologists in 1993 (see Carter and de Forest 1993), it was decided that a concerted effort should be undertaken to determine the breeding states of the Long-billed Murrelet in northern Japan. The effort began on 19 and 20 July 1993, when inland surveys were initiated in northeastern Hokkaido in an attempt to locate potential breeding sites (J. Minton, H. Nakagama, and M. Matsuda, unpublished data). Four survey stations were established: (1) two on Mt. Mokoto, one in a valley of large *Picea jezoensis* (Yezo spruce) trees (Site 1) and one at the site where an adult was collected in 1961 (Site 2); and (2), two in Shiretoko National

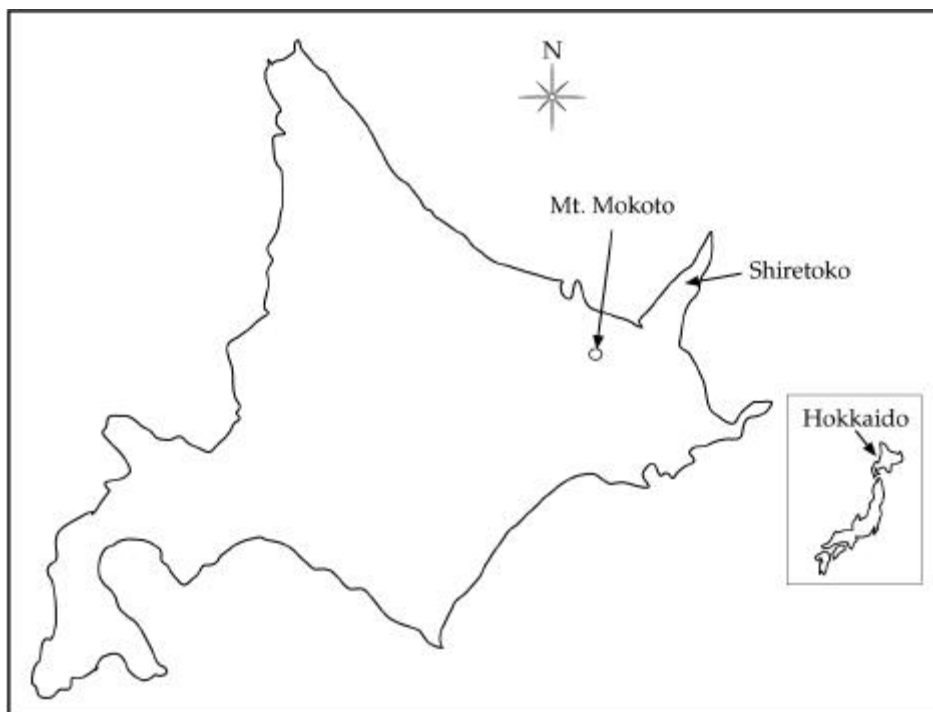


Figure 1. Map of Hokkaido Island, Japan, showing the location of Mt. Mokoto and the Shiretoko Peninsula.

(Kuzyakin 1963, Nechaev 1986, Labzyuk 1987, Kondratyev and Nechaev 1989). In addition to these nests, two females were collected with eggs in their oviducts in the Sea of Okhotsk and off the Kamchatka Peninsula, and sightings of murrelets have occurred as far as 60 km inland along the

Nakagama, and M. Matsuda, unpublished data). Four survey stations were established: (1) two on Mt. Mokoto, one in a valley of large *Picea jezoensis* (Yezo spruce) trees (Site 1) and one at the site where an adult was collected in 1961 (Site 2); and (2), two in Shiretoko National

Park, one on the pass road in mixed *Abies sachalinensis* (Saghalin fir) and *Betula ermanii* (birch) forest (Site 3) and one along the Iwaobetsu River (Iwaobetsu-kawa; Site 4) (Figures 1 - 4). Surveys from shore, to detect birds on nearshore waters, were also conducted at 11 stations on 19 July. Despite these efforts, no murrelets were detected during these surveys, although fog many have prevented observations on the water.

At the PSG meeting in Victoria, British Columbia in 1995, discussions between Japanese and American biologists (ourselves and H. Carter) resulted in the decision to follow up on the 1993 surveys and continue efforts to determine the breeding status of the Long-billed Murrelet in Japan. Therefore, we initiated the surveys described herein to locate potential breeding sites of this species in northeastern Hokkaido. Specific objectives of these surveys were to: (1) locate potential inland breeding sites on the Shiretoko Peninsula and Mt. Mokoto; (2) identify areas of suitable nesting habitat; and (3) train surveyors for future inland surveys.

### Study Area

We focused all but one of our surveys on the Shiretoko Peninsula and in Shiretoko National Park on the northeast coast of Hokkaido Island (Figures 1 and 3 - 6). This peninsula, especially Shiretoko National Park, includes the largest undisturbed forest in close proximity to existing records of murrelets (adults and young of the year) in the Sea of Okhotsk and at Mt. Mokoto (Brazil 1991, M. Matsuda pers. comm.). Shiretoko is a long, narrow peninsula (70 km long and 25 km wide) that juts into the Sea of Okhotsk. The National Park extends from the middle of the peninsula to the cape. The interior of the peninsula is lined with volcanic mountains that range to

*Abies sachalinensis* (Saghalin fir), and *Picea jezoensis* (Yezo spruce). Above 600 m the vegetation is dominated by *Betula ermanii* (birch) and *Pinus pumila* (pine; Ohtaishi and Nakagawa 1988). In summer, the climate on the Utoro side (northwest) of the peninsula is mild and relatively dry (average precipitation 91.7 mm, temperature 15° C), while the Rausu side (southeast) is often foggy, cool and damp (average precipitation 145 mm, tempera-

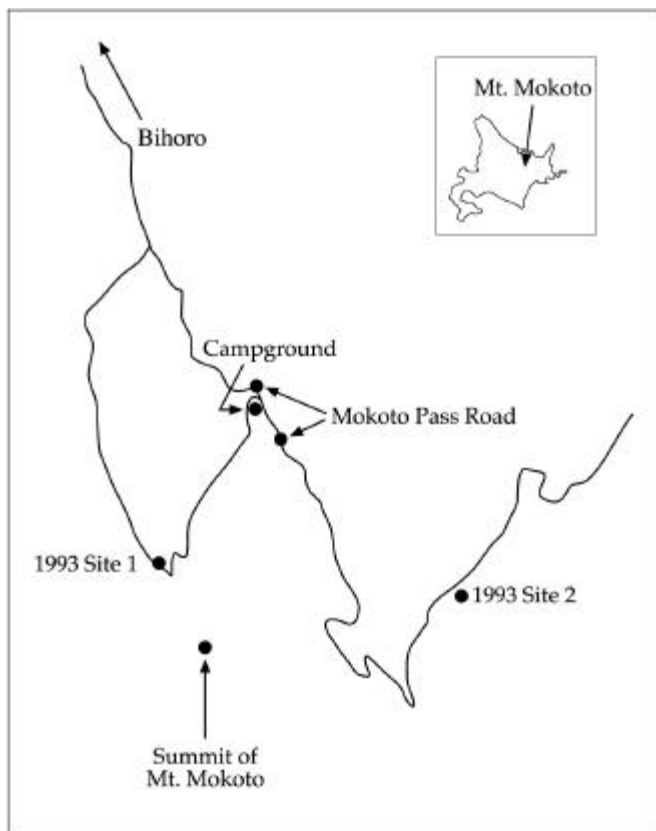


Figure 2. Map of Mt. Mokoto, northeastern Hokkaido, Japan, showing the locations of the 1993 and 1996 Long-billed Murrelet survey stations.

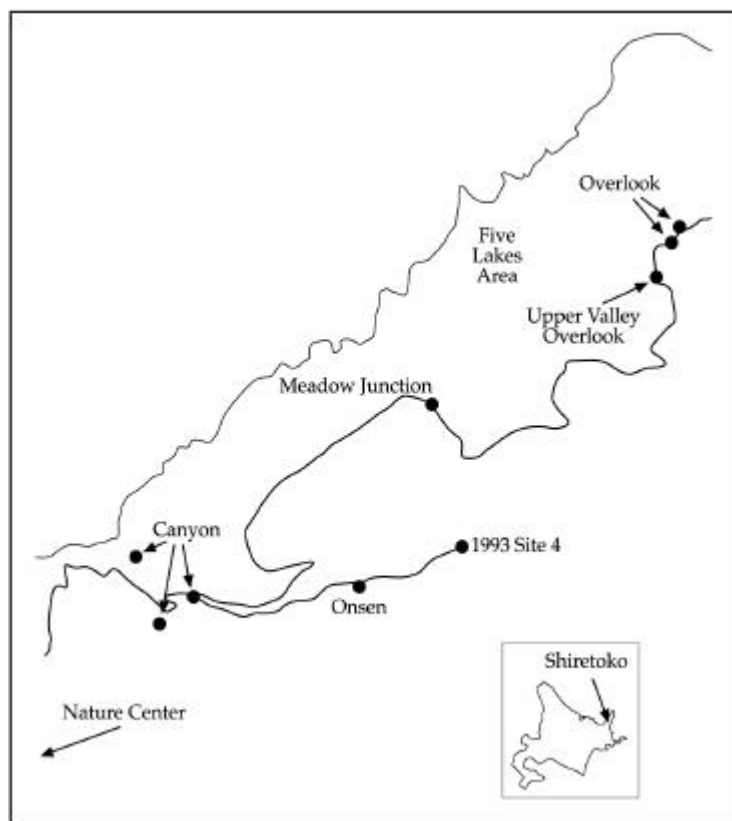


Figure 3. Map of the 1993 and 1996 Long-billed Murrelet survey stations located along the northwest side of Shiretoko National Park, Hokkaido, Japan.

1661 m in elevation. Parts of the coastal areas on both sides of the peninsula (but especially on the west side) are lined with steep volcanic cliffs. The vegetation up to 600 m is primarily mixed deciduous and coniferous forest including *Quercus mongolica* (Mongolian oak), *Acer mono* (painted maple), *Ulmus davidiana* (Japanese Elm), *Taxus cuspidata* (Japanese yew), *Abies sachalinensis*

(Saghalin fir), and *Picea jezoensis* (Yezo spruce). Above 600 m the vegetation is dominated by *Betula ermanii* (birch) and *Pinus pumila* (pine; Ohtaishi and Nakagawa 1988). During the winter months, precipitation falls primarily in the form of snow, and ice floes in the Sea of Okhotsk and Nemuro Strait surround the peninsula.

One survey was conducted at Mt. Mokoto (elevation 999 m), an old volcano adjacent to Kussharo Lake (Kussharo-ko), located 24 km inland in northeastern Hokkaido (Figures 1 and 2). Weather and vegetation on Mt. Mokoto are similar to

the Shiretoko Peninsula. At our survey stations (>700 m), the forest consisted primarily of *Abies sachalinensis* (Saghalin fir) and *Betula ermanii* (birch).

Surveys were never conducted on the Rausu side, however, because of highway construction, time constraints, and marginal habitat (limited trees with plat-

July on Mt. Mokoto and 3 - 6 July on the Shiretoko Peninsula) (Tables 1 and 2, Appendix). Surveys followed the Pacific Seabird Group (PSG) survey protocol (Ralph et al. 1994) with a few modifications. Surveys began 120 minutes (instead of 45 minutes) before, and continued until 90 minutes after, official sunrise. Our survey crew consisted of 14 biologists familiar with the biology and vocalizations of murrelets. These biologists were stationed in groups of 2 - 5 to maximize the chances of detecting birds flying silently up drainages or over ridges.

## Results

A total of 60 observer days of surveys (9 at Mt. Mokoto and 50 on the Shiretoko Peninsula) were conducted between 1 and 6 July (Tables 1 and 2, Appendix). No Long-billed Murrelets were detected during these surveys, although there were several potential vocalizations heard along the Coast Road on 4 and 5 July. An additional survey was conducted at this site on 6 July, but no detections were recorded.

## Discussion

Sixty observer days of surveys were not enough to locate Long-billed Murrelets in, or conclude they are absent from, northeastern Hokkaido. According to the Pacific Seabird Group survey protocol (Ralph et al. 1994), at least four surveys at each survey site should be conducted per year for two consecutive years to determine presence and absence. Therefore, additional effort will be required to determine the status of Long-billed Murrelets on Mt. Mokoto and the Shiretoko Peninsula.

Hokkaido is located in the southern portion of the breeding range of *B. perdix* and much of the native forest on the island has been logged or modified, therefore this species probably occurs in low numbers on the island. Despite a potentially small population size, we believe the limited observations of juveniles on the water and the discovery of an adult at an inland location, combined with the presence of suitable nesting habitat in forested and alpine areas, indicate that Long-billed Murrelets have a high likelihood of nesting in northeastern Hokkaido. Additional inland observations of this species during the breeding season just north of Hokkaido, on Sakhalin Island (known nest site) and on the southern Kuril Islands (Shikotan, Iturup, Urup and Kunashir; Nechaev 1986, Konyukhov and

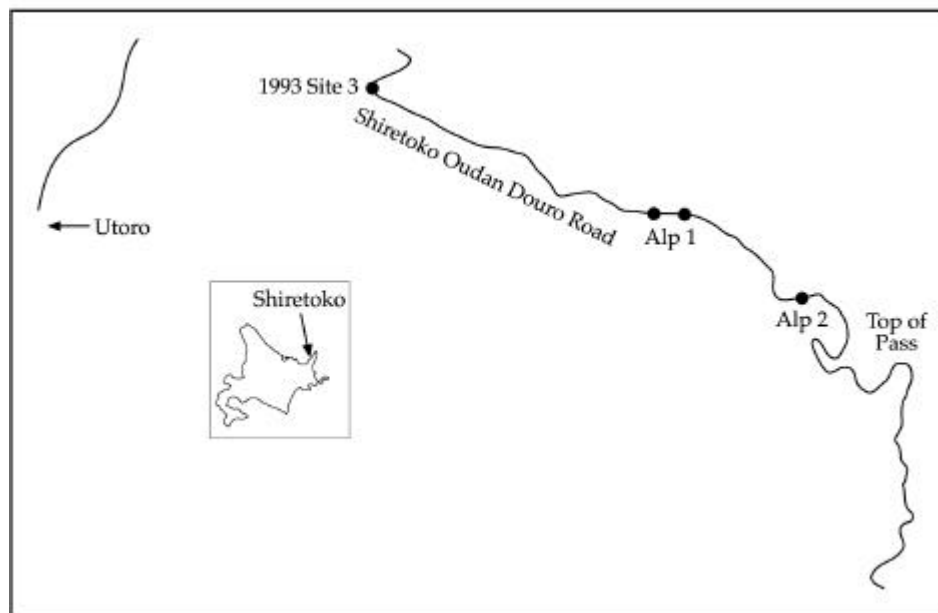


Figure 4. Map of the 1993 and 1996 Long-billed Murrelet survey stations located on the Shiretoko Oudan Douro pass road in Shiretoko National Park, Hokkaido, Japan.

## Methods

On the Shiretoko Peninsula, locations for inland survey stations were selected by reviewing available information on habitat types and using our knowledge of Marbled Murrelet habitat associations in North America (Hamer and Nelson 1995). We explored forested areas in the park for the presence of potential nest platforms (>10 cm in diameter). We attempted to minimize biases in our searches by considering both coniferous and deciduous trees as potential nest sites. Potential nest platforms were uncommon on the peninsula, therefore survey stations were placed (1) in mixed species forests with the largest potential platforms available, and (2) in major drainages that murrelets might use as flight corridors to inland nesting sites. In addition, because murrelets are known to nest on the ground, we surveyed alpine and rock talus areas. Our survey stations were located near the 1993 stations but not in the same location (Figures 2 - 4).

Twenty-two survey stations were established on the Shiretoko Peninsula, 15 on the Utoro side and 7 on the Rausu side of the peninsula (Table 1, Figures 3 - 6).

forms). Therefore, 15 stations were surveyed. These stations were located in forests ( $n = 4$ ), along rivers adjacent to forests ( $n = 7$ ), in a meadow adjacent to forest and with a view of alpine ( $n = 1$ ), or near rock talus slopes in alpine areas ( $n = 3$ ). All stations were placed in openings in the forests or along ridges to maximize the chances of hearing and seeing murrelets. Due to the abundance of brown bears (*Ursus arctos yesoensis*) in the park in 1996, hiking trails and the back-country were closed within Shiretoko National Park. Survey stations were therefore established along existing paved or gravel roads.

At Mt. Mokoto, surveys were conducted near the top of the mountain in one of the only remaining areas of potential habitat areas (the forested area where an adult was collected in 1961 was logged and, therefore, is no longer suitable). Three survey stations were established, two along the Mt. Mokoto Pass Road that provided views into adjacent conifer forest and one in the Mt. Mokoto campground, an area surrounded by large conifer trees (Table 2, Figure 2).

Intensive surveys for murrelets were conducted between 1 and 6 July 1996 (1

Kitaysky 1995), support the high probability of Long-billed Murrelets nesting on Hokkaido.

In the future, additional inland surveys need to be conducted on Mt. Mokoto, the Shiretoko Peninsula, and other areas of suitable habitat in Japan. However, we suggest that surveys for birds on the water in the Sea of Okhotsk and Nemuro Strait be completed first to determine the distribution of murrelets off northeastern Hokkaido in summer, as there appears to be a correlation between at-sea distribution and the distribution of murrelets at inland nesting sites (Nelson et al. 1992, Ralph et al.

1995). During these surveys, particular attention should be paid to the presence of hatch-year birds. Once the at-sea distribution of Long-billed Murrelets is known, specific areas can be identified for conducting inland surveys.

#### Acknowledgments

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#### Literature Cited

American Ornithologists' Union. 1997. Check-list of North American birds, 41st supplement. *Auk* 114:542-552.

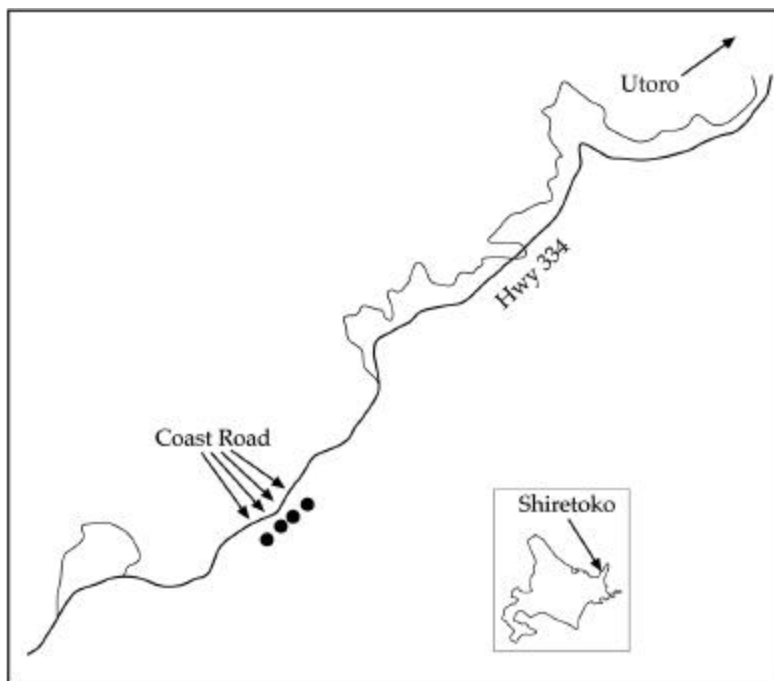


Figure 5. Map of the Long-billed Murrelet survey stations located along the Coast Road, south of Utoro on the Shiretoko Peninsula, Hokkaido, Japan.

Brazil, M.A. 1991. The birds of Japan. Smithsonian Institution Press, Washington, D.C. 466 pp.

Carter, H.R., and L. de Forest. 1993. Pacific Seabird Group goes to Japan: Part 1. *Pacific Seabird Group Bull.* 20: 14-17.

Guignet, C.J. 1956. Enigma of the Pacific. *Audubon* 58:164-167, 174.

Hamer, T.E., and S.K. Nelson. 1995. Characteristics of Marbled Murrelet nest trees and nesting stand, pp. 69-82. *In Ecology and conservation of the Marbled Murrelet.* (Ralph, C.J., G.L. Hunt, Jr., J.F. Piatt, and M.G. Raphael, eds.) U.S. Department of Agriculture, Forest Service General Technical Report PSW-GTR-152, Albany, CA.

Helm, R.C., H.R. Carter, S.H. Newman, J.N. Fries, K. Ono, and M. Sato. 1997. Seabird injury and wildlife care during the 1997 *Nakhodka* oil spill in the Sea of Japan: observations and recommendations by a team of U.S. scientists and Japanese seabird researchers. Unpublished report, U.S. Fish and Wildlife Service, Ecological Services, Portland, OR; U.S. Geological Survey, Biological Resources Division, California Science Center., Dixon, CA; and University of California, Wildlife Health Center, Davis, CA.

Kistchinski, A.A. 1968. Birds of the Kolymkogo Nagoria. Nauka Publishing House, Moscow, USSR.

Kondratyev, A.Y., and V.A. Nechaev. 1989. Marbled Murrelet, pp. 142-143. *In Rare vertebrates of the Soviet Far East and their protection.* (Kostenko, V.A., P.A. Ler, V.A. Nechaev, and Y.V. Shibaev, eds.) (In Russian).

Konyukhov, N.B., and A.S. Kitaysky. 1995. The Asian race of the Marbled Murrelet, pp. 23-29. *In Ecology and conservation of the Marbled Murrelet.* (Ralph, C.J., G.L. Hunt, Jr., J.F. Piatt, and M.G. Raphael, eds.) U.S. Department of Agriculture, Forest

Service General Technical Report PSW-GTR-152, Albany, CA.

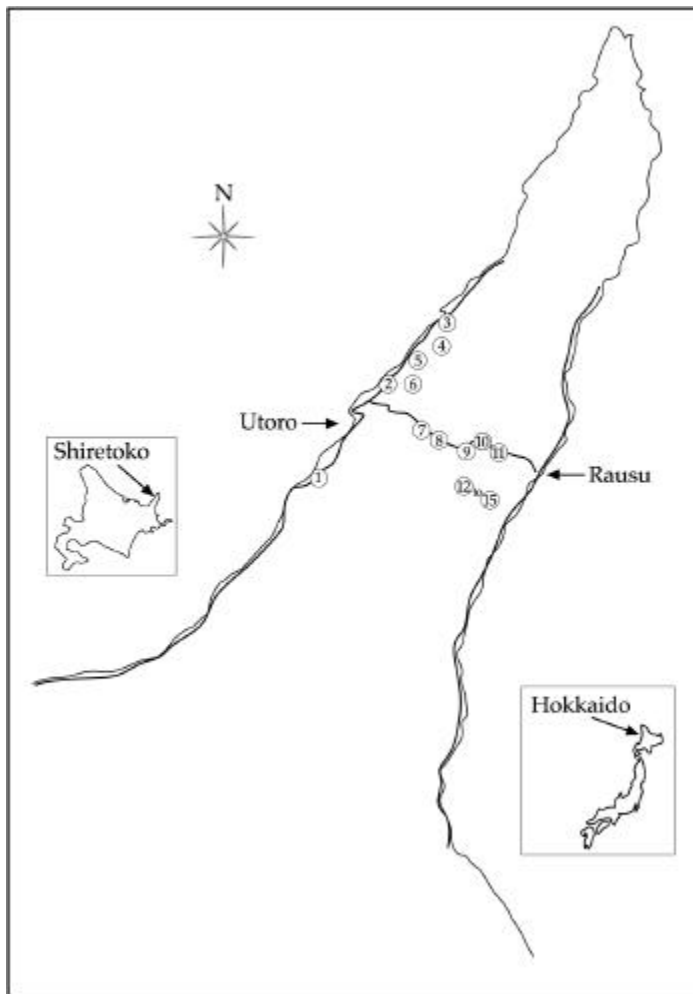
Kuzyakin, A.P. 1963. On the biology of the Marbled Murrelet. *Ornitologiya* 6:315-320. (In Russian; English translation in Van Tyne Memorial Library, Univ. Michigan, Ann Arbor, MI).

Labzyuk, V.I. 1987. A sudden occurrence of the nest of *Brachyramphus marmoratus* in Southern Primorye, pp.85-86. *In Distribution and biology of seabirds of the Far East.* Litvinenko, N.M. (ed.) Akademiya Nauk SSSR, Vladivostok, USSR. (In Russian; English translation by P. T. Gilbert).

Nechaev, V.A. 1986. New data on the seabirds of Sakhalin Island, pp. 71-81. *In Seabirds of the Far East.* (Litvinenko, N.M., ed.) Akademia Nauk SSSR, Vladivostok, USSR. (In Russian; English translation by D. Siegel-Causey).

Nelson, S.K. 1997. Marbled Murrelet (*Brachyramphus marmoratus*). *In The Birds of North America*, No. 276. (Poole, A. and F. Gill, eds.) The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Nelson, S.K., M.L.C. McAllister, M.A. Stern, D.H. Varoujean, and J.M. Scott. 1992. The Marbled Murrelet in Oregon, 1899-1987, pp. 61-91. *In Status and Conservation of the Marbled Murrelet in North America.* (Carter, H.R. and M. Morrison, eds.) Proceedings of the Western Foundation of Vertebrate Zoology 5(1).



Ohtaishi, N., and N. Nakagawa. 1988. Animals of Shiretoko: vertebrate fauna in their natural state and their conservation on the Shiretoko Peninsula, Hokkaido, Japan. Hokkaido University Press, Sapporo, Japan.

Ralph, C.J., S.K. Nelson, M.M. Shaughnessy, S.L. Miller, and T.E. Hamer. 1994. Methods for surveying Marbled Murrelets in forests: a protocol for land management and research. Pacific Seabird Group, U.S. Forest Service, Redwood Sciences Lab, 1700 Bayview Drive, Arcata, CA.

Ralph, C.J., G.L. Hunt, Jr., J.F. Piatt, and M.G. Raphael. 1995. Ecology and conservation of the Marbled Murrelet in North America: Overview, pp. 3-22. *In* Ecology and conservation of the Marbled Murrelet. (Ralph, C.J., G.L. Hunt, Jr., J.F. Piatt, and M.G. Raphael, eds.) U.S. Department of Agriculture, Forest Service General Technical Report PSW-GTR-152, Albany, CA.

By **S. Kim Nelson**, Oregon Cooperative Wildlife Research Unit, Oregon State University, Department of Fisheries and Wildlife, 104 Nash Hall, Corvallis, OR 97331-3803 USA,

[nelsonsk@cmail.orst.edu](mailto:nelsonsk@cmail.orst.edu), **Koji Ono**, Hokkaido Seabird Center, Kita 6-1, Haboro, Tomamae 078-41, Japan, **John N. Fries**, Laboratory of Wildlife Biology, University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, 113 Tokyo, Japan, and **Thomas E. Hamer**, Hamer Environmental, 2001 Highway 9, Mt. Vernon, WA 98274 USA

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Figure 6. Map of the Shiretoko Peninsula, Hokkaido, Japan, showing the location of Utoro and Rausu, and the 1996 Long-billed Murrelet survey stations. Numbers correspond to the survey site numbers listed in Table 1.

Some of the Long-billed Murrelet survey team members, top, left to right, Takeo Akama and John Fries, bottom, right to left, Mihoko Sato, Koji Ono, and Yasuhiro Kawasaki.

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Table 1. Site names and locations of Long-billed Murrelet survey stations, and dates of surveys on the Shiretoko Peninsula, Hokkaido Island, Japan, 1996. Numbers (#) correspond to the survey station locations in Figure 6. The Site Names are listed with the station locations in Figures 3 - 5.

#	Site Name	Location	Side of Peninsula <sup>1</sup>	Latitude/ Longitude	No. Stations <sup>2</sup>	Dates of Surveys	Habitat Type
1	Coast Road	Gravel road above Hwy 334	NW	N44° 02.084' E144° 56.996'	4	4, 5, 6 July	Mixed forest
2	Canyon	Road above Ewao-betsukawa <sup>3,4</sup>	NW	N44° 06.306' E145° 02.666'	3	3, 6 July	River drainage, mixed forest
3	Overlook	Road above Idashi-betsugawa <sup>3,4</sup>	NW	N44° 06.175' E145° 03.792'	2	3 July	River drainage, mixed forest
4	Upper Valley Overlook	Road above Idashi-betsugawa <sup>3,4</sup>	NW	N44° 07.823' E145° 06.147'	1	5 July	River drainage, mixed forest
5	Meadow Junction	Gravel road along meadow <sup>4</sup>	NW	N44° 07.145' E145° 04.644'	1	4 July	Meadow, mixed forest, alpine
6	Onsen	Road along Iwao-betsukawa <sup>3</sup>	NW	N44° 08.271' E145° 06.653'	1	6 July	River drainage, mixed forest
7	Alp1	Along pass road from Utoro to Rausu <sup>5</sup>	NW	N44° 04.102' E145° 04.702'	2	3, 4 July	Birch forest, alpine
8	Alp 2	Along pass road from Utoro to Rausu <sup>5</sup>	NW	N44° 03.664' E145° 05.486'	1	5 July	Birch forest, alpine
9	Rausu Alp 1	Along pass road from Utoro to Rausu <sup>5</sup>	SE	N44° 02.396' E145° 06.236'	1	n/a	Birch forest, alpine
10	Rausu Alp 2	Along pass road from Utoro to Rausu <sup>5</sup>	SE	N44° 02.032' E145° 06.418'	1	n/a	Birch forest, alpine
11	Bridge	Along pass road over Shunrobashikawa <sup>3,5</sup>	SE	N44° 01.841' E145° 08.392'	1	n/a	River drainage, mixed forest
12	Valley	Gravel road along unknown river	SE	N43° 56.715' E145° 04.224'	1	n/a	River drainage, mixed forest
13	View	Gravel road along unknown river	SE	N43° 56.529' E145° 04.196'	1	n/a	River drainage, mixed forest
14	Fork	Gravel road along unknown river	SE	N43° 56.333' E145° 04.182'	1	n/a	River drainage, mixed forest
15	John	Gravel road along unknown river	SE	N43° 56.495' E145° 05.094'	1	n/a	River drainage, mixed forest

<sup>1</sup> NW = northwest (Utoro side), SE = southeast (Rausu side).

<sup>2</sup> Not all stations surveyed on each date.

<sup>3</sup> River name.

<sup>4</sup> Along Shiretoko Kooen-sen road.

<sup>5</sup> Along Shiretoko Oudan Douro pass road or Hwy 334.

Table 2. Name and location of Long-billed Murrelet survey stations and date of survey at Mt. Mokoto, Hokkaido Island, Japan, 1996. The Site Names are listed with the station locations in Figure 2.

#	Site Name	Location	Latitude/ Longitude	No. Stations	Date of Surveys	Habitat Type
1	Mt. Mokoto Campground	gravel parking area	N43° 42.506' E144° 21.057'	1	1 July	mixed forest
2	Mt. Mokoto Pass Road	pass road	N43° 42.568' E144° 20.959'	2	1 July	mixed forest

### Appendix.

Itinerary of our trip to search for Long-billed Murrelets on Hokkaido Island, Japan, 1996. See Tables 1 and 2 for names of the survey stations and dates of surveys. See acknowledgments for full names of scientists and surveyors.

### 26 June

North American contingent (Nelson, Hamer, Wright, Leschner, Gaston, Stephen Kress) leaves the U.S and Canada. Some of the Japanese contingent (Ono, Fries, Otsuki, Akama, Sato) board Blue Highway Line ferry from Tokyo to Tomakomai, Hokkaido.

### 27 June

Arrive in Tokyo, then fly to Sapporo, Hokkaido. Nelson, Hamer, Wright, Leschner, Gaston and Kress meet with Yuri and Yataka Watanuki in Sapporo. Stay in hotels.

### 28 June

Meet with Ono, Fries, Otsuki, Akama, Sato in Sapporo. Drive to Haboro-cho on the west coast of Hokkaido. Stay at Gyoson Kankyo Hozen Sogo Center (youth hostel), others at Hotel Haboro.

### 29 June

Attend International Seabird Forum, Symposium on Ecological and Conservation Studies of the Alcidae, hosted by the town of Haboro. Leschner, Gaston and Kress, along with Japanese scientists (Haruo Ogi, Yutaka Watanuki, Nariko Oka, and Takaki Terasawa), present data on alcid research. In late afternoon take ferry to Teuri Island. At dusk, visit the largest Rhinoceros Auklet colony in the world.

Stay at Teuri Island Research Center, others in hotel.

### 30 June

Take bus and boat tour of Teuri Island. International Seabird Forum continues; Leschner, Gaston, Kress, and Otsuki stay at meetings. Ono, Fries, Nelson, Hamer, Wright, Fukuda, Akama, and Sato take ferry back to Haboro-cho, meet with Kawasaki, and drive to Mt. Mokoto in northcentral Hokkaido. Camp in campground at top of mountain.

### 1 July

Conduct Long-billed Murrelet surveys at 3 stations (9 people) on Mt. Mokoto. No detections. Drive to Shiretoko Peninsula in northeastern Hokkaido. Meet with Park Ranger, Matsuda, to get information on vegetation and possible places to locate survey stations. Leschner, Gaston, and Otsuki meet up with us; Kress returns to U.S. Set up camp at Utoro Campground.

### 2 July

Establish survey stations in Shiretoko National Park (Utoro and Rausu sides) and along the Coast Road. Meet with Matsuda again about vegetation and locating survey stations. Gaston and Leschner take boat ride along Utoro side of peninsula to look for murrelets on the water. None are sighted. Camp at Utoro Campground.

### 3 July

Conduct surveys; 12 people at 6 stations. No detections. Flag more stations on Rausu side of peninsula. Camp at Utoro Campground.

### 4 July

Conduct surveys; 12 people at 5 stations. Possible detections on Coast Road. Hotes and Yuichi arrive. Meet with Park Ranger Tazawa about vegetation on Rausu side of peninsula. Camp at Utoro Campground.

### 5 July

Conduct surveys; 13 people at 5 stations. Possible detections on Coast Road. Gaston leaves for touring Japan. Camp at Utoro Campground.

### 6 July

Conduct surveys; 13 people at 5 stations. No detections. Camp at Utoro Campground.

### 7 July

Hamer and Leschner fly back to U.S. Hotes and Yuichi leave for home. The rest of us drive to the town of Nakashibetsu and the Kushiro Shitsugen Refuge to see Japanese Cranes, then on to Kirritapu. Stay in government cabins.

### 8 July

Birdwatch and explore Kirritapu. Stay in government cabins.

### 9 July

Drive to Kushiro. Ono, Fries, Akama, and Sato return to Tokyo via ferry or plane. Kawasaki leaves for home. Nelson, Wright, Fukuda, and Otsuki drive to Sapporo.

### 10 July

Fukuda returns to Teuri Island. Nelson, Wright, and Otsuki fly to Tokyo.