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Summary of 2009 Marbled Murrelet Surveys
at “Girl Scout Creek” in Butano State Park,
San Mateo County, CA

Prepared for

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INTRODUCTION

Dawn surveys for Marbled Murrelets (*Brachyramphus marmoratus*) were continued in 2009 at a parcel known as “Girl Scout Creek,” recently acquired by the California Department of Parks and Recreation and included within Butano State Park (Figure 1). Initial surveys conducted in 2002 confirmed that murrelets were present at the site, and sub-canopy flight behavior classified the site as “occupied” habitat where murrelets were likely nesting (Mori 2002). Three years of additional surveys were begun in 2007 (Suddjian 2007).

STUDY AREA

The Girl Scout Creek parcel is 80 acres in the west ½ of the northeast ¼ of Section 20, Township 8 S, Range 4 West, approximately 4.7 air miles from the ocean (Figure 2). It is located on the upper half of a west-facing slope of the canyon of Butano Creek, a perennial stream that is as close as 0.28 mi. to the study area. Elevations in the study area range from approximately 560 to 980 feet above sea level. Slopes vary from moderate to steep, and a low ridge divides the parcel into northern and southern portions. The southern part is drained by the stream known as “Girl Scout Creek,” a small perennial tributary to Butano Creek; the northern part is drained by two smaller unnamed intermittent tributaries of Butano Creek.

Habitat conditions and human use patterns at the site were described in the 2007 summary report (Suddjian 2007); these remained unchanged in 2008 and 2009.

METHODS

Survey methods followed the approved protocol to detect presence or occupancy of Marbled Murrelets in forests (Pacific Seabird Group 2003). Each survey began 45 minutes before sunrise and continued to at least 75 minutes after sunrise. In addition to information about murrelets, notes were kept on all bird species recorded, and additional information was recorded on locations, numbers and activities of any known murrelet predators (e.g., corvids and raptors). Two 10 minute-long unlimited distance point counts were made during each survey.

Two survey stations were established in 2007 (#1 and #2), and two other stations were added in 2008 (#3 and #4, Figure 2). All four stations were sampled in 2009. The parcel's closed forest canopy greatly limits options for suitable survey stations. The process of selecting additional stations was also hampered by a lack of demarcation of site boundaries (i.e., property lines) in the field and inadequacies of the U.S.G.S. topographic map.

Seven surveys were conducted at four stations in 2009, spanning April 30 to July 31 (Table 1). As in 2007 and 2008, more effort was focused at Station #1 than at the other stations. This location had significant murrelet activity on initial surveys in 2002 and 2007, and continued multiple surveys were conducted there to track changes in general levels of murrelet flight activity. Surveys at the three other stations were conducted in 2009 to continue to sample more broadly on the site. All stations are located near potential murrelet nest trees. Station #1 has a decent view of the sky to the north of the station, looking toward the "Girl Scout Creek" drainage, where a tree fall has created a gap. It is surrounded by numerous potential nest trees. Station #2 has a more limited view of the sky, again to the north. Station #3 has a limited view of the sky toward the southwest, and is located in a tributary to "Girl Scout Creek", just over a low ridge from Station #1. Station #4 is near Station #2, with a limited view of the sky.

RESULTS

Thirty-three species of birds were recorded during surveys in 2009 (Table 2). Marbled Murrelets were recorded on four surveys (Table 1), compared to seven surveys in 2007 and five surveys in 2008. A total of 10 murrelet detections were recorded, with no detections of sub-canopy flights.

Marbled Murrelets

Station #1. Station #1 had low activity in 2009, with just 2 and 3 detections on two surveys and no detections on two surveys (Table 1). All of the five detections recorded at Station #1 in 2009 were auditory only at distances greater than 150 meters, with all oriented generally to the west and northwest.

Station #2.

The single survey at Station #2 had no murrelet detections.

Station #3.

The single survey at Station #3 had one detection of two murrelets seen and heard as they flew from north to southwest at about 1.9 canopy height, passing over the station.

Station #4.

The single survey at Station #4 had four detections. All four were auditory, of birds in the distance to the west and northwest at distances greater than 300 meters. No activity was evident near the survey station.

Murrelet Predators

Bird species that are known or potential murrelet predators recorded in the study area during 2009 were Cooper's Hawk, Red-shouldered Hawk, Steller's Jay and Common Raven. Great Horned Owl was also heard, but only far off to the west.

A Cooper's Hawk was heard calling north of Station #2 on May 8. Red-shouldered Hawks were heard on five of the seven survey mornings. Most registrations were probably of the same pair of hawks that held a territory along the western margin of the site, and they were recorded on three dates in or over the forest of the Girl Scout parcel, particularly near Stations #1 and #3; none were noted on other visits. Steller's Jay was recorded daily, with 3-4 individuals heard during the each dawn survey. The whole parcel probably supported 5 nesting pairs in 2009. A pair of Common Ravens was active throughout the area in May, but subsequently ravens were only heard calling in the far distance.

DISCUSSION

The low level of murrelet activity observed in 2009 was similar to that of 2008 (Suddjian 2009), but even lower (Table 3). Activity levels were much higher in 2002 (Mori 2002) and 2007 (Suddjian 2007). Four dawn surveys conducted at Station #1 in July 2002 recorded consistent activity (4-59 detections), and also recorded sub-canopy flights and at least one tree landing (Mori 2002). The four surveys at Station #1 in 2007 also had consistent activity, recording a total of 99 detections, with 33 sub-canopy flights (Suddjian 2007). In contrast, four surveys at Station #1 in 2008 had 10 total detections, with just one sub-canopy flight (Suddjian 2009), and four surveys there in 2009 had only five detections and no sub-canopy flights. The low activity at Stations #2, #3 and #4 was similar to low activity in 2008, but again was less than in 2007 (Table 3). Of the 10 total detections recorded at Girl Scout Creek in 2009, only one was clearly over the parcel, with all the rest distant to the west and northwest. Thus, while Marbled Murrelet presence continued at the site, there was little indication that any nesting occurred or was attempted there in 2009.

LITERATURE CITED

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Table 1. Summary of dawn murrelet surveys conducted at Girl Scout Creek in 2009.

Station	Date	Obs.	Cloud Cover	Precip.	Total # Dets.	# Occ.¹ Dets.
1	30 April 09	Suddjian	0%	none	0	0
1	23 May 09	Suddjian	100%	fog	0	0
1	27 June 09	Suddjian	100%	fog	2	0
1	13 July 09	Suddjian	100%	fog	3	0
2	8 May 09	Suddjian	0-100%	fog	0	0
3	7 Jun 09	Suddjian	0%	none	1	0
4	31 July 09	Suddjian	100%	fog	4	0

1. Occ. Dets. = occupied site detection, i.e., detection of murrelet(s) flying below the forest canopy or landing in trees.

Table 2. Bird species recorded during surveys at the Girl Scout Creek study area in April to July 2009.

Turkey Vulture (<i>Cathartes aura</i>) *	Steller's Jay (<i>Cyanocitta stelleri</i>) **
Cooper's Hawk (<i>Accipiter cooperi</i>) *	Common Raven (<i>Corvus corax</i>)
Red-shouldered Hawk (<i>Buteo lineatus</i>)	Violet-green Swallow (<i>Tachycineta thalassina</i>)
Marbled Murrelet (<i>Brachyramphus marmoratus</i>) *	Chestnut-backed Chickadee (<i>Poecile rufescens</i>) **
Band-tailed Pigeon (<i>Patagioenas fasciata</i>) **	Pygmy Nuthatch (<i>Sitta pygmaea</i>) *
Mourning Dove (<i>Zenaida macroura</i>) *	Pacific Wren (<i>Troglodytes pacificus</i>) **
Western Screech-Owl (<i>Megascops kennicotti</i>) **	Golden-crowned Kinglet (<i>Regulus satrapa</i>) *
Great Horned Owl (<i>Bubo virginianus</i>) [only heard far to west of study area]	Hermit Thrush (<i>Catharus guttatus</i>) **
Northern Saw-whet owl (<i>Aegolius acadicus</i>) *	American Robin (<i>Turdus migratorius</i>) *
Allen's Hummingbird (<i>Selasphorus sasin</i>) *	Wrenit (<i>Chamaea fasciata</i>) *
Acorn Woodpecker (<i>Melanerpes formicivorus</i>) *	Hermit Warbler (<i>Dendroica occidentalis</i>) *
Hairy Woodpecker (<i>Picoides villosus</i>) *	Wilson's Warbler (<i>Wilsonia pusilla</i>) **
Northern Flicker (<i>Colaptes auratus</i>)	Spotted Towhee (<i>Pipilo maculatus</i>) *
Pileated Woodpecker (<i>Dryocopus pileatus</i>) *	Dark-eyed Junco (<i>Junco hyemalis</i>) **
Pacific-slope Flycatcher (<i>Empidonax difficilis</i>) **	Purple Finch (<i>Carpodacus purpureus</i>) *
Hutton's Vireo (<i>Vireo huttoni</i>) *	Red Crossbill (<i>Loxia curvirostra</i>)
	Pine Siskin (<i>Carduelis pinus</i>) *

** Evidence of confirmed nesting in the study area observed in 2009

* Observations suggested species likely nests in the study area, but direct evidence was not obtained

Table 3. Average number of detections recorded at each station at Girl Scout Creek from 2007 to 2009.

Year	Station 1	Station 2	Station 3	Station 4	Total
2007	24.8 (3.3) ¹	11.7 (0.3)	---	---	19.1 (4.9)
2008	2.5 (0.3)	0 (0)	2 (0)	3 (0)	2.1 (0.1)
2009	0.7 (0)	0 (0)	1 (0)	4 (0)	1.4 (0)

1. Number in parentheses is the average number of “occupied site” detections, i.e., detection of murrelet(s) flying below the forest canopy or landing in trees.

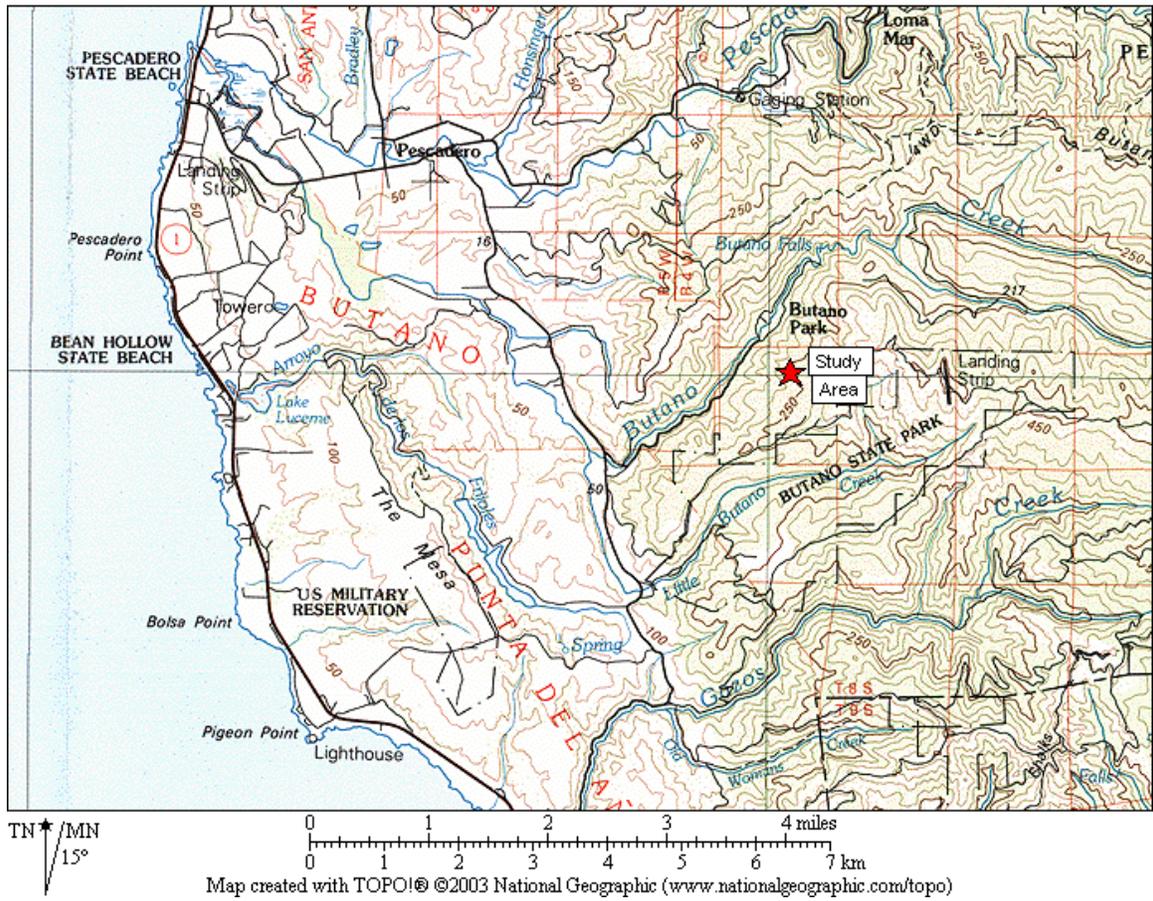


Figure 1. General location of the Girl Scout Creek study area (star).

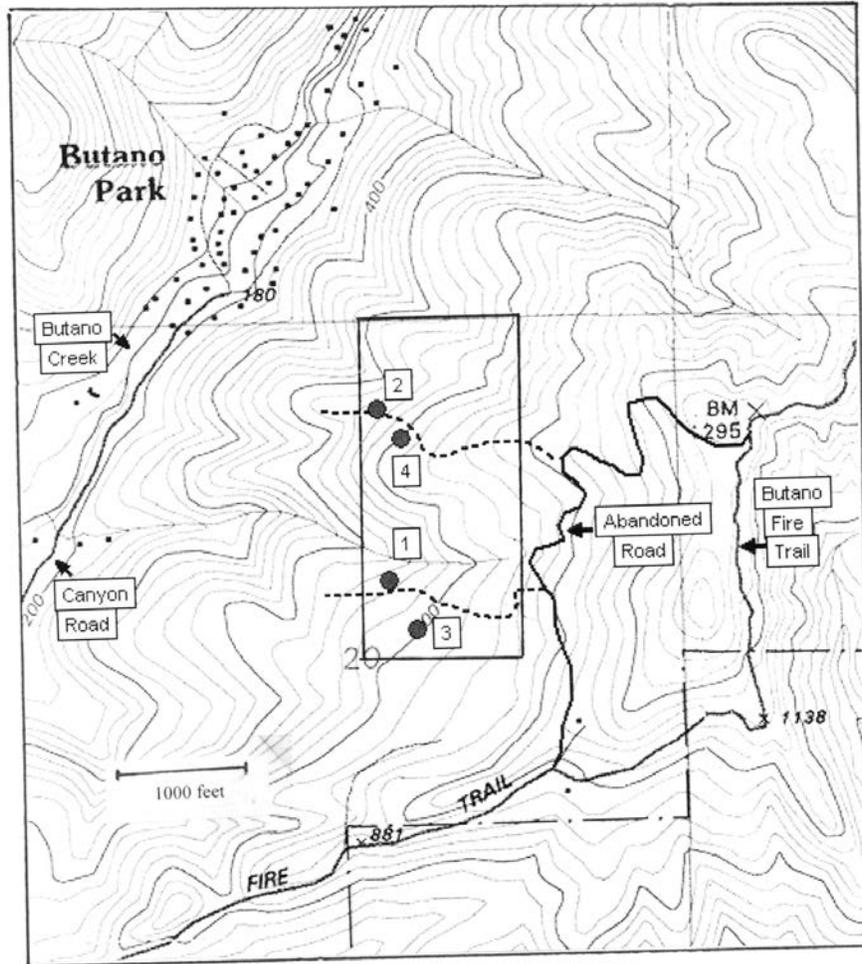


Figure 2. Girl Scout Creek study area, showing location of murrelet survey stations (circles) and the approximate routes of two existing trails on the site (dashed lines).