

**2011 Marbled Murrelet Surveys:
“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 completed in 2011 (Shaw, et al) at a parcel known as “Girl Scout Creek”, which was recently acquired by the California Department of Parks and Recreation and included within Butano State Park. Initial surveys conducted in 2002, then again in 2008 had originally established 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). Two years of additional surveys were completed in 2007-2008 (Suddjian 2007). This study covers the current status of the first two years (2010-2011) of the three-year 2010-2012 survey effort, and compares/adds the previous two survey years (2007-2008) of information.

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. 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.

See Figures 1 and 2 for locations maps of the survey area.

METHODOLOGY

Survey methods continue to follow 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).

One survey station was completed during 2010-2011, and will also be surveyed in 2012. Previous surveys included two survey stations completed in 2007 as well as two different stations surveyed in 2008. The survey point that is being completed currently is most near to survey point #1 in previous years. Thus this call point will be also referenced as call point #1 within this document. As discussed in the previous Girl Scout Creek murrelet report (Suddjian, 2008), and was further evidenced during 2010, the new Girl Scout Creek parcel is poorly delineated with on ground property markings. Thus, station establishment was challenging as a result. However, one of the few forest openings in this parcel was found with a 60 degree north-northwest view wedge out and above the canopy as probably the best murrelet viewing location within this 80 acre forested parcel. This approximate location also had the most detections in 2002, 2007-2008 during, thus was the best station to survey again during the 2010-2012 time period.

It should be further noted that this survey station is found on a north and slightly west facing moderate slope (10-20%) in combined douglas-fir and redwood second growth forest, with a small component of residual, “non-loggable” forest (meaning, they didn’t take these trees when they logged due to contortions and twists in the wood). Thus, the remaining older trees are more gnarled in nature, but provide quality possible nesting platforms for murrelets.

The seven surveys were completed in 2011 from June 21 to August 2.

See Tables 1 and 2 for 2008, 2010 and 2011 murrelet data.

RESULTS

As was the case in 2010, the 2011 results show very little occupied behavior. Only on the third survey did murrelets fly subcanopy at this survey station. This is significant though as it shows occupancy and probable use of the forest for nesting. Most of the detections through the seven survey period however, were received from murrelets that could be heard calling “keers” as they moved either in or back out of the forest from the coast. Similar again to 2010, during many of the surveys a small group of or a single murrelet could be heard calling from the north for example, at 330 degrees, and then hear it calling still from the north, but at 30 degrees, and so on as it flew to the east inland, probably to its nesting location. Totals detections averaged 5.7 detections per morning, with a high of 10 detections and a low of 2 detections. These numbers were only slightly less detections per morning than in 2010 (6.8 detections per morning). Most of these were acoustical detections, as the viewshed is below what would be considered good, with only a small portion of the northern sky visible for visual murrelet detections here.

However, overall murrelet numbers would be considered fairly low when compared to the Ben Reis and Little Butano survey stations located just over a ridge or two to the north. This is mainly due to the lesser habitat located at the Little Girl Scout Creek station, with mostly second growth forest the main forest structure here. However, it is not out of the question that murrelets could use the residual larger redwood trees (~ 2 per acre here) for nesting. Although better nesting trees definitely exist east of this location in abundance.

CORVIDS

Corvid numbers within the Girl Scout Creek parcel at station #1 were found to be what would be considered at normal population numbers for a second growth redwood/douglas fir forest within the Santa Cruz Mountains or in most any other naturally occurring coniferous forest in California. The most jays detected on any one morning was seven (7). The total of seven jays is above average for what one would expect in a natural forest setting. On two mornings only one jay was seen or heard. There were STJA present at all of the survey visits. The average number of jays detected was three (3). The highest number of ravens detected on a single morning was two (2). On two mornings there were zero ravens seen or heard. The average number of ravens was 1. Besides the one morning of seven STJA, these numbers again fall in line with the 2007-2008 numbers of corvids detected during surveys in those years. This further shows the consistency of corvid numbers in the area. These numbers are normal and any possible predation on nesting murrelets should be considered typical behavior within this type of natural forest setting.

There were no forest avian predators seen or heard during morning murrelet surveys in either 2010 or 2011.

DISCUSSION

Murrelet activity in 2011 was slightly lower than in 2010. 40 detections were received over the seven survey mornings in 2011, with an average of 5.7 detections per morning and a high total of 14 detections with a low total of two detections. In only slight contrast there were 48 total detections total in 2010, with only an average of 6.8 detections per morning. In 2008, there were 10 detections (2.5 detects/morning) but this was only with a sample survey size of four survey mornings. However there were 99 detections total in 2007, which is an average of 25 detections per morning over four survey mornings. There was only one subcanopy detection in 2011 out of 40 total detections, while there were two (2) subcanopy detections in 2010 out of the 48 total detections. These smaller overall numbers are more than likely due to the lesser quality habitat in this portion of the park (second growth Douglas fir/Redwood versus old growth forests nearby (Butano SP). Thus, it seems fairly obvious that the murrelets would choose the larger forests that are available a short distance from this survey station. However, the one (2011) and two (2010) subcanopy detections do show some type of occupied behavior within the forest at the survey station. Most detections were above the canopy and were heard more distant from the site, and were mostly contact "keer" calls of murrelets communicating with other murrelets flying into and back out of the larger nesting type mature forests nearby.

Additional years of monitoring on the site will be conducted to further assess trends in murrelet activity. The current 2011 year data, which includes between 4-7 survey visits/year shows what up to this point what could be considered an average detection year, when contrasting the high number year of 2007 and the low number year of 2008. Thus, further years of studies will be completed in 2012 that will hopefully solidify this data further into population trend data over what will be six years of data in 2012.

LITERATURE CITED

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Suddjian, D. L. 2007. Summary of 2007 Marbled Murrelet Surveys at "Girl Scout Creek" in Butano State Park, San Mateo County, CA. Unpubl. report prepared for California Dept. of Parks and Recreation.

FIGURES AND TABLES

Figure 1: California State/County Parks Overview Map: Murrelet Surveys 2010 and Previous Years

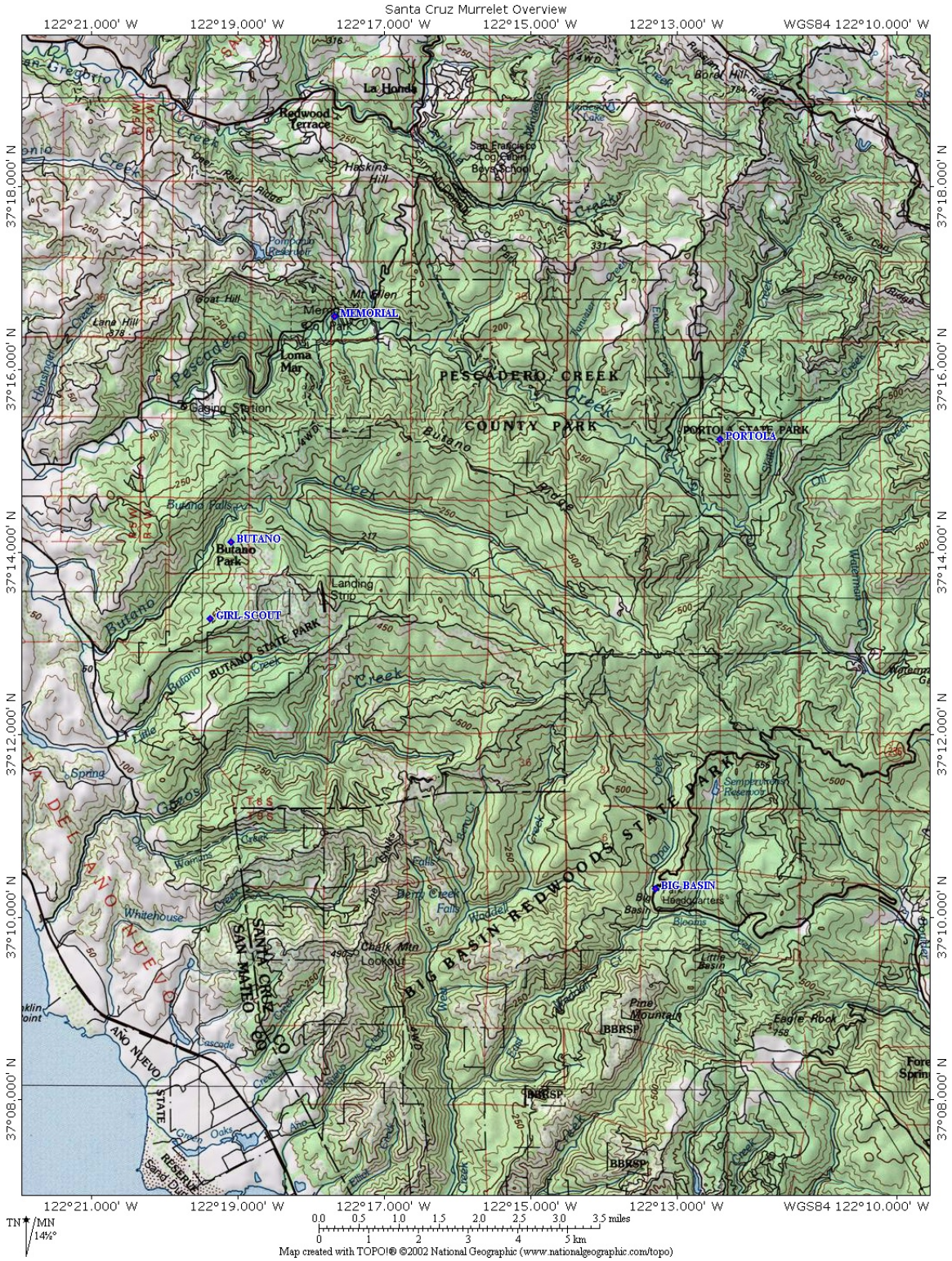


Figure 2: Girl Scout Murrelet Survey Station #1 Map

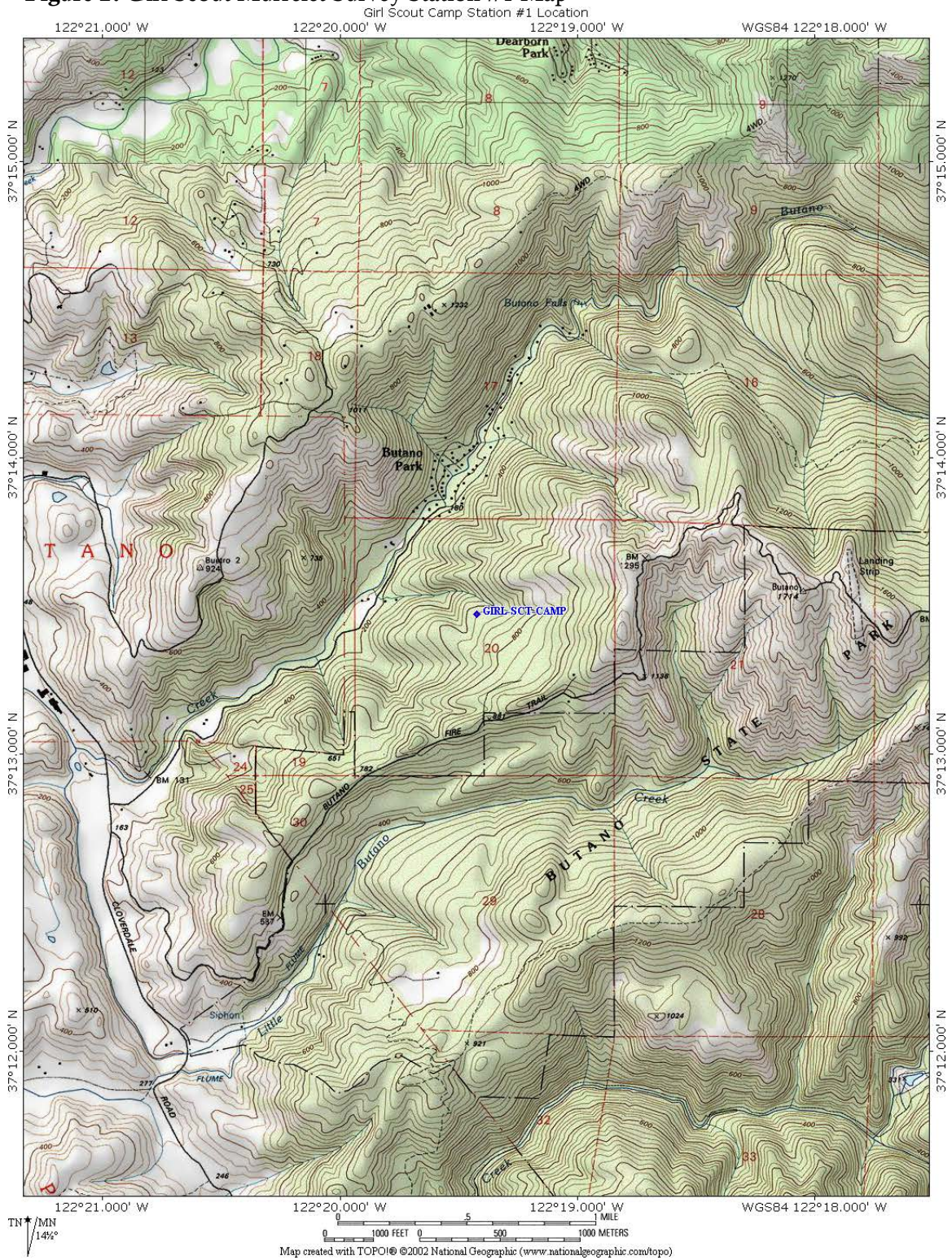


Table 1. 2008 SURVEY YEAR: Summary of protocol marbled murrelet surveys conducted at call station #1: Girl Scout Creek in **2008** (three (3) other stations were also surveyed in 2008 (5 total additional detections received)).

Station	Date	Observer	Cloud Cover	Total Detects	Occupied Detects
1	9 May 08	Suddjian	100%	3	1
1	10 Jun 08	Suddjian	100%	0	0
1	9 July 08	Suddjian	100%	2	0
1	26 July 08	Suddjian	100%	5	0
TOTALS:				10	1

Table 2. 2010 Survey Year: Summary of protocol marbled murrelet surveys conducted at call station #1: Girl Scout Creek in **2010** (The only station surveyed in 2010)

Station	Date	Observer	Cloud Cover	Total Detects	Occupied Detects
Girl Scout Camp	6/25/10	BKS	100	8	2
Girl Scout Camp	7/6/10	BKS	100	7	0
Girl Scout Camp	7/13/10	BKS	25	9	0
Girl Scout Camp	7/20/10	BKS	100	14	0
Girl Scout Camp	7/26/10	SS	0	2	0
Girl Scout Camp	7/31/10	BKS	25	6	0
Girl Scout Camp	8/5/10	SS	100	2	0
TOTALS:				48	2

Table 3 – 2011 Survey Year. Summary of protocol marbled murrelet surveys conducted at call station #1: Girl Scout Creek in **2010** (The only station surveyed in 2010)

Station	Date	Observer	Cloud Cover	Total Detects	Occupied Detects
Girl Scout Camp	6/21/10	BKS	100	2	2
Girl Scout Camp	6/28/10	BKS	100	6	0
Girl Scout Camp	7/10/10	BKS	25	9	0
Girl Scout Camp	7/26/10	BKS	100	7	0
Girl Scout Camp	7/21/10	SS	0	5	0
Girl Scout Camp	7/26/10	BKS	25	8	0
Girl Scout Camp	8/2/10	SS	100	2	0
TOTALS:				40	2

Table 3. Bird species recorded during surveys at the Girl Scout Creek study area in May to August 2010.

Marbled Murrelet (<i>Brachyramphus marmoratus</i>) *	Common Raven (<i>Corvus corax</i>)
Band-tailed Pigeon (<i>Patagioenas fasciata</i>) **	Chestnut-backed Chickadee (<i>Poecile rufescens</i>) **
Mourning Dove (<i>Zenaidura macroura</i>) *	Steller's Jay (<i>Cyanocitta stelleri</i>) **
Acorn Woodpecker (<i>Melanerpes formicivorus</i>) *	Golden-crowned Kinglet (<i>Regulus satrapa</i>) *
Hairy Woodpecker (<i>Picoides villosus</i>) **	Hermit Thrush (<i>Catharus guttatus</i>) *
Northern Flicker (<i>Colaptes auratus</i>)	American Robin (<i>Turdus migratorius</i>) *
Pileated Woodpecker (<i>Dryocopus pileatus</i>) *	California Quail (<i>Callipepla californica</i>)
Pacific-slope Flycatcher (<i>Empidonax difficilis</i>) *	Wilson's Warbler (<i>Wilsonia pusilla</i>) **
Yellow-Rumped Warbler (<i>Dendroica coronate</i>)	Dark-eyed Junco (<i>Junco hyemalis</i>) **