

American Badger surveys on San Diego County Land summary of 2020-2021 field efforts.



Prepared for:

San Diego Management & Monitoring Program

U.S. Department of the Interior
U.S. Geological Survey
Western Ecological Research Center

Summary 2020

American Badger Surveys in San Diego County were performed in 2020 from February 4 to December 17, we surveyed for badger sign across eleven reserves/sites within San Diego County. We focused on predefined focal areas and where fresh sign was found during our 2015 surveys in order to better characterize badger use of these areas and to locate denning and burrow areas. We started by setting infrared cameras in areas with confirmed badger sign at our core sites Volcan Mountain Wilderness Preserve and Lake Morena County Park. Once cameras were set, repeat visits were conducted every 8-10 weeks to check and reset cameras and to survey for fresh sign. If fresh badger sign was found, cameras were checked within 3-4 weeks. Surveys were performed based on procedures described in the USGS Badger Report Synthesis (Brehme et al, 2020). We continued to add cameras and survey at sites in response to phone calls and emails from our badger outreach hotline.

Surveys focused on two core locations (Volcan Mountain Wilderness Preserve and Lake Morena County Park) from February - December 2020 with Ramona Grasslands County Preserve, Barnett Ranch County Preserve, Santa Ysabel East and West County Preserves, Clover flats Wildlife Preserve, Denlinger Valley, Rancho Guejito, San Diego River Park Property and Pamo Valley visited for discovery in response to historical badger activity or reported sightings from our badger hotline. We verified American badger at seven of the sites on nine different occasions (Volcan Mountain Wilderness Preserve, Lake Morena County Park, Clover Flats Wildlife Preserve, Denlinger Valley, Rancho Guejito, and Santa Ysabel East and West County Preserves). We received 23 phone calls or emails from citizen scientists to our badger hotline, with 10 of those contacts being high confidence of badger observations (Badger_Hotline_2020to2021_Datasheet). At our other core site of Lake Morena County Park badger activity was observed on many occasions from March through December, with multiple camera captures throughout the area (Figure 1). At the core site of Volcan Mountain Wilderness Preserve we documented fresh badger sign in August with a badger captured on camera on 8/7/2020 visiting a burrow (Figure 2). See attached spreadsheet (Badger_SDCounty_2020to2021_Datasheet) for 2020 summary data and for specific survey dates, locations, and results. Many of our surveys were performed by our USGS badger volunteer team, after training from USGS biologists on survey procedures and badger sign.

Summary 2021

In 2021, we surveyed for badger sign across six reserves/sites within San Diego County from January 7 to November 29. Repeat surveys focused on two core locations (Volcan Mountain Wilderness Preserve and Lake Morena County Park) where repeated badger activity has been documented since 2013 and in 2020 to better characterize badger use of these areas and to locate denning and burrow areas. Rancho Jamul Ecological Preserve, Cuyamaca State Park (7 Survey visits), Santa Ysabel Cauzza County Preserve (3 survey visits), and Clover Flats Wildlife Preserve were surveyed for discovery or in response to reported sightings from our badger hotline.

We verified American badger activity at three of the sites (Lake Morena County Park, Cuyamaca State Park and Santa Ysabel Cauzza County Preserve). At the core site of Volcan Mountain Wilderness Preserve, no badger activity was detected during surveys in 2021. Surveys at Lake Morena County Park detected fresh badger activity from February through November (Figure 3). We received 27 phone calls or emails from citizen scientists to our badger hotline, with 15 reports confirmed by USGS to be high confidence badger observations (General Locations-Lake Morena County Park, Cuyamaca State Park, Ramona, CA, Pine Valley, CA, Anza Borrego,

CA, San Clemente, CA, Redlands, CA, and Riverside County, CA.) (Badger_Hotline_2020to2021_Datasheet). Of those 13 high confidence reports, 6 were roadkill badgers, 6 were photos from wildlife cameras and one badger was brought to Project Wildlife after getting into a fight with two dogs. See attached spreadsheet (Badger_SDCounty_2020to2021_Datasheet) for 2021 summary data and for survey dates, locations, and results.

Surveyors:

Devin Adsit-Morris, Cheryl Brehme, Bob Ollerton (Volunteer), Dick Chadwick (Volunteer), Nancy Butsumyo (Volunteer), Vince Butsumyo (Volunteer) and Phoenix Von Hendy (Volunteer)

Special thanks to our USGS badger volunteer team (Figures 4-7) that conducted over 35 badger sign surveys during 2020-2021 and covered hundreds of acres across San Diego County. Without their help we would not be able to collect and provide the much-needed data on badger activity in the county.

More complete data and analysis will be provided in our next synthesis.

References:

Brehme, C.S., D.T. Adsit-Morris, and R.N. Fisher. 2020. American Badger Research in Western San Diego County; Results Synthesis, Literature Review and Pathway for Future Research and Monitoring, Draft Final.

San Diego County Badger Surveys 2020- 2021 (Badger_SDCounty_2020to2021_Datasheet)

Badger Hotline and Email Contacts 2020- 2021 (Badger_Hotline_2020to2021_Datasheet)



Figure 1. Badger Burrow with Hair Snag, Lake Morena May 15, 2020.



Figure 2. Badger captured at Volcan Mountain Wilderness Preserve, August 7, 2020.



Figure 3. Badger captured at Lake Morena County Park, July 17, 2021.



Figure 4. Nancy Butsumyo and Dick Chadwick surveying Volcan Mountain Wilderness Preserve.



Figure 5. Dick Chadwick inspecting a burrow at Santa Ysabel County Preserve.



Figure 6. Devin Adsit-Morris (USGS) training the volunteer team at Lake Morena County Park.

A.



B.



Figure 7. (A) Nancy Butsumyo inspecting a burrow and (B) Vince Butsumyo collecting habitat data.

Table 1. Badger Activity Summary

| Date | Location | Survey/ Hotline | Badger Sign? (Y/N) | Sign Type | UTM Easting | UTM Northing |
|------------|--|------------------------|--------------------|-----------------------------|-------------|--------------|
| 1/7/2020 | Lake Morena | Hotline | Yes | Burrows and Digs | 544205.92 | 3619337.88 |
| 2/4/2020 | Volcan Mountain Wilderness Preserve | Surveyed and cam check | No new badger sign | NA | NA | NA |
| 2/4/2020 | San Diego River Park | Surveyed and cam check | No new badger sign | NA | NA | NA |
| 3/25/2020 | Lake Morena | Hotline | Yes | Burrows and Digs | 544124.54 | 3619215.56 |
| 4/13/2020 | Lake Morena County Park | Badger Sign Survey | Yes | Burrows and Digs | 545501 | 3618092 |
| 4/15/2020 | Border area and Shockey Truck Trail | Hotline | Yes | Badger with babies | 558206.75 | 3607375.64 |
| 4/16/2020 | Border area and Shockey Truck Trail | Hotline | Yes | Badger | 560042.6 | 3606944.61 |
| 4/26/2020 | Anza Borrego | Hotline | Yes | Badger | 575002.75 | 3634343.72 |
| 5/13/2020 | 4730 Quiet Oaks Trail, Julian | Hotline | Yes | Badger | 536205.69 | 3656003.27 |
| 5/13/2020 | Frisius Drive, YMCA Camp | Hotline | Yes | Badger | 536337.43 | 3656268.4 |
| 5/15/2020 | Lake Morena County Park | Badger Sign Survey | Yes | Burrows and Digs (Figure 1) | 54539.78 | 3618103.46 |
| 5/16/2020 | Otay Area | Hotline | Yes | Digs | 507556.5 | 3613947.81 |
| 5/19/2020 | Mountain Warfare Training in La Posta | Hotline | Yes | Burrows and Digs | 550594 | 3616248 |
| 5/19/2020 | Denlinger Valley | Badger Sign Survey | Yes | Old Burrows | 551276.71 | 3615840.23 |
| 5/21/2020 | Pamo Valley | Badger Sign Survey | No | NA | NA | NA |
| 7/1/2020 | Clover Flats Wilderness Preserve | Badger Sign Survey | Yes | Burrows | 555140.24 | 3614131.62 |
| 7/2/2020 | Rancho Guejito | Badger Sign Survey | Yes | Burrow | 510926.92 | 3671915.99 |
| 7/14/2020 | Camp Pendleton, 4611 Sleeping Indian Road, Fallbrook | Hotline | Yes | Badger | 475005.76 | 3685432.81 |
| 7/14/2020 | Lake Morena County Park | Surveyed and cam check | Yes | Badger on Cam (Figure 2) | 545393.27 | 3618110.66 |
| 8/4/2020 | Jackrabbit trail, Redlands CA | Hotline | Yes | Badger | 494080.31 | 3751049.06 |
| 8/5/2020 | Clover Flats Wilderness Preserve | Badger Sign Survey | Yes | Tracks | 555406.78 | 3613494.76 |
| 8/5/2020 | Volcan Mountain Wilderness Preserve | Surveyed and cam check | Yes | Burrow | 539319.7 | 3662813.57 |
| 9/1/2020 | Volcan Mountain Wilderness Preserve | Surveyed and cam check | Yes | Camera (Figure 5) | 539319.7 | 3662813.57 |
| 9/28/2020 | Barnett Ranch County Preserve | Badger Sign Survey | No | NA | NA | NA |
| 10/8/2020 | Barnett Ranch County Preserve | Badger Sign Survey | No | NA | NA | NA |
| 10/21/2020 | Santa Ysabel East County Preserve | Badger Sign Survey | Yes | Old Digs | 536122.3 | 3664651 |
| 10/29/2020 | Santa Ysabel East County Preserve | Badger Sign Survey | Yes | Old Digs | 535156.7 | 3664952.3 |
| 11/6/2020 | Santa Ysabel West County Preserve | Badger Sign Survey | No | NA | NA | NA |
| 11/24/2020 | Santa Ysabel West County Preserve | Badger Sign Survey | Yes | Old Digs | 528049.1 | 3662857.4 |
| 12/17/2020 | Ramona Grasslands County Preserve | Badger Sign Survey | No | NA | NA | NA |
| 1/19/2021 | Cuyamaca Rancho State Park | Hotline | Yes | Burrows and Digs | 540351.96 | 3648695.87 |
| 3/11/2021 | Jacumba, CA | Hotline | Yes | Badger | 581769.65 | 3614799.26 |
| 1/7/2021 | Lake Morena County Park | Badger Sign Survey | Yes | Digs | 545445.46 | 3618142.88 |
| 2/25/2021 | Cuyamaca State Park | Badger Sign Survey | Yes | Burrows and Digs | 540247.21 | 3648575.85 |
| 3/22/2021 | Cuyamaca State Park | Surveyed and cam check | Yes | Digs | 539975.4 | 3648688.6 |
| 4/1/2021 | Cuyamaca State Park | Badger Sign Survey | Yes | Burrows and Digs | 539603.87 | 3648540.46 |
| 4/2/2021 | Redlands Blvd. | Hotline | Yes | Dead Badger | 485632.7 | 3760264.29 |
| 4/6/2021 | Cuyamaca State Park | Surveyed and cam check | Yes | Burrows and Digs | 540090.04 | 3648636.98 |
| 4/7/2021 | Cuyamaca State Park | Badger Sign Survey | No | NA | NA | NA |
| 4/23/2021 | Cuyamaca State Park | Badger Sign Survey | Yes | Burrows and Digs | 541351.74 | 3648751.49 |
| 5/3/2021 | Anza Borrego Desert | Hotline | Yes | Badger | 583242.98 | 3609908.6 |
| 5/5/2021 | Anza Borrego/ Cuyamaca State Park | Badger Sign Survey | Yes | Burrows and Digs | 543509.2 | 3650978 |
| 5/10/2021 | Anza Borrego/ Cuyamaca State Park | Badger Sign Survey | Yes | Burrows and Digs | 543333.1 | 3650774.4 |
| 5/25/2021 | Trabuco Canyon/San Juan Capistrano | Hotline | Yes | Badger | 447587.8 | 3715423.48 |
| 5/26/2021 | Lake Morena | Hotline | Yes | Badger | 545342.46 | 3618257.16 |
| 6/3/2021 | Rancho Jamul Ecological Preserve | Badger Sign Survey | No | NA | NA | NA |
| 6/16/2021 | Avenida La Pata, San Juan Capistrano | Hotline | Yes | Dead Badger | 443184.98 | 3705551.15 |
| 6/19/2021 | Woodcrest, CA | Hotline | Yes | Dead Badger | 464764.73 | 3749154.11 |
| 7/22/2021 | Clover Flats Wilderness Preserve | Badger Sign Survey | No | NA | NA | NA |
| 7/31/2021 | Buckman Springs Road | Hotline | Yes | Dead Badger | 549359.22 | 3610303.28 |
| 8/5/2021 | Lake Morena | Surveyed and cam check | Yes | Camera (Figure 3) | 545465.28 | 3618180.5 |
| 8/16/2021 | 60 westbound freeway, Riverside | Hotline | Yes | Dead Badger | 497333.98 | 3754686.07 |
| 8/19/2021 | Buckman springs Rd. | Hotline | Yes | Dead Badger | 547446.89 | 3623859.3 |
| 8/25/2021 | Pine Valley | Hotline | Yes | Live Badger | 543844.31 | 3631437.14 |
| 9/23/2021 | Ramona, San Diego Habitat Conservancy | Hotline | Yes | Badger | 505274 | 3654677 |
| 10/19/2021 | Santa Ysabel Cauzza County Preserve | Badger Sign Survey | Yes | Digs | 529780.1 | 3665116.1 |
| 11/1/2021 | Cuyamaca State Park | Badger Sign Survey | No | NA | NA | NA |
| 11/22/2021 | Volcan Mountain Wilderness Preserve | Badger Sign Survey | No | NA | NA | NA |
| 11/29/2021 | Cuyamaca State Park | Badger Sign Survey | Yes | Digs | 540994.8 | 3643067.3 |