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To: Molly Sandomire
From: Heather Johnson
Date: August 21, 2015
RE: Fulton-Fitch Mountain Bat Survey

SUMMARY

On July 15 and 16, 2015, Garcia and Associates (GANDA) biologists conducted a bat habitat assessment and emergence survey as part of project planning for Pacific Gas and Electric Company's (PG&E) Fulton-Fitch Mountain Reconductoring Project (project). The purpose of the survey was to determine if trees and structures at, or near, project activity areas may provide potential bat roosting habitat. In general, the availability of potential habitat was considered to be low. Many project activity areas are located within urban development, along paved roads with regular vehicle traffic, and within forest with closed canopy and dense understory vegetation. Approximately 20 percent of the trees assessed during the daytime inspections had potential cavities and/or crevices that could provide bat roosting habitat. This report provides a procedure to allow passive escape of any bats present in trees with potential roosting features that will be trimmed or removed. No bats emerged or were acoustically detected during an evening acoustic survey conducted near six trees considered to have potential roosting habitat. No bats or bat sign was found in an unused barn adjacent to the staging area on Shiloh Ridge Road.

METHODS

GANDA bat specialist Heather L. Johnson and biologists Eric Jepsen (July 15) and Vicki Trabold (July 16) surveyed project access and work areas. During the day we inspected natural and anthropogenic features in work areas from vantage points on the ground, as accessibility and safety allowed. We used flashlights and binoculars to look for bat sign such as guano deposits and urine stains, and we listened for audible bat vocalizations. We acoustically monitored bat echolocation

with ultrasonic detectors (Anabat, manufactured by Titley Scientific, New South Wales, Australia). For one hour near the time of sunset on July 15, two biologists visually and acoustically monitored (i.e., conducted an emergence survey) near six trees that were considered to have potential bat habitat, and an additional detector was placed along the project access road nearby.

RESULTS AND DISCUSSION

One structure near a project activity area was surveyed for bat habitat. An unused barn structure adjacent to the staging area on Shiloh Ridge Road had potentially suitable cave-like rooms with open flyway entrances, and some crevices (Photo 1); however, no bats or their sign were present.

A limited number of unmarked trees identified via aerial imagery for trimming or removal were accessible in the field. Trees planned for trimming or removal in dense forest were inaccessible to survey, though they are also considered unsuitable for roosting habitat due to a lack of open canopy that allows solar warming of roosts, uncluttered flyway space, and travel corridors (Photo 2). Bats often use features such as streams, anthropogenic paths and trails, and small roads as travel corridors. Subsets of trees were located in the field based on a Google Earth kmz file and arborist's notes. Approximately 133 trees were identified and assigned a yes or no value for potential bat habitat (Table 1). Twenty-eight of the 133 trees had hollows or cavities from decay and/or bird activity (photos 3–9), or crevices underneath exfoliating bark (Photo 10) that could provide bat habitat, and were located in more open canopy near trails and small roads.

No bats were visually or acoustically detected during the emergence survey conducted by E. Jepsen at T278, T279, and T280 (Photo 11), H. Johnson near T297, T298, and T299 (Photo 12), or at a passive bat detector placed further south along the project access route at a likely travel corridor. A second emergence survey was precluded by lack of access, primarily on private land including a private gate on Shiloh Ridge Road (T152 to T182), and safety concerns due to regulations prohibiting parking after sunset on Faught Road or in the Shiloh Regional Park.

Procedure to Avoid Potential Bat Habitat during Tree Trimming and Removal

Workers should:

1. Cut down the trees/snags/stumps on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly.
2. Create noise and vibration disturbance on the tree (e.g., concussive hitting with equipment and/or chainsaw cutting) for at least 15 minutes before carefully opening up potential crevices and cavities for inspection and clearance.
3. Request that a monitoring biologist be present to inspect crevices and cavities to the extent possible. If bats may be in a tree bole or heavy branch cavity, the biologist will attempt to expose them and allow escape. For example, if the cavity cannot be investigated by the monitoring biologist, then carefully cut successive sections above the cavity to open it,

waiting up to 10 minutes in between each cut, and determine if it is empty or allow any bats inside to crawl or fly out.

4. Determine if bats may be in branches that can be removed from the tree and set aside. Cut the branches off intact and set them upright against trees away from the work activity area to allow any bats present to passively escape.

CONCLUSION

Many project activity areas are located within urban development, along paved roads with regular vehicle traffic, and within forest with closed canopy and dense understory vegetation. In areas where bats are somewhat likely to occur (e.g., around larger trees along trails and small roads), about 20 percent of the trees assessed during the daytime inspections had potential cavities and/or crevices that could provide roosting habitat. For those trees that will be trimmed or removed with potential to have roosting bats, we recommend following the procedure to allow passive escape.

Table 1. List of trees planned for trimming or removal with potential bat habitat status.

Tree ID	DBH	Species	Trim	Removal	Potential bat habitat?
T4	15	Valley Oak	YES		No
T5	10	Valley Oak	YES		No
T6	16	Valley Oak	YES		No
T7	22	Valley Oak		YES	No
T13	42	Box Elder	YES		No
T14	15	Locust	YES		No
T15	45	Coast Live Oak	YES		No
T16	15	Pear		YES	No
T17	20	Pear	YES		No
T25	35	Coast Live Oak	YES		Yes - cavity
T60	12	Madrone		YES	No
T66	13	Coast Live Oak		YES	No
T70	13	Coast Live Oak		YES	No
T73	32	Coast Live Oak		YES	Yes - cavities
T74	40	Coast Live Oak	YES		Yes - cavities
T75	24	Coast Live Oak		YES	No
T76	18	Coast Live Oak		YES	No
T77	16	Coast Live Oak		YES	No
T80	14	Willow		YES	No
T136	30	Coast Live Oak		YES	No
T137	48	Coast Live Oak	YES		Yes - avoid cavities
T138	48	Coast Live Oak	YES		Yes - avoid cavities
T139	32	Fig		YES	No
T140	48	Coast Live Oak		YES	No
T141	20	Coast Live Oak		YES	No
T143	12	Madrone		YES	No
T145	25	Coast Live Oak		YES	No
T146	12	Coast Live Oak		YES	No
T147	40	Coast Live Oak	YES		Yes - avoid basal hollow
T148	30	Coast Live Oak	YES		Yes - large cavity
T149	32	Coast Live Oak	YES		Yes - unsure of exact location
T150	20	Madrone	YES		No
T152	16	Coast Live Oak		YES	No
T153	24	Madrone	YES		No
T155	42	Coast Live Oak		YES	No
T156	48	Coast Live Oak		YES	Yes
T157	42	Coast Live Oak	YES		Yes - avoid cavities

Tree ID	DBH	Species	Trim	Removal	Potential bat habitat?
T158	26	Coast Live Oak	YES		No
T159	22	Coast Live Oak	YES		No
T162	32	Coast Live Oak	YES		Yes
T163	36	Coast Live Oak	YES		Yes - avoid cavities in trees 162 and 163
T165	38	Black Oak	YES		No
T166	36	Coast Live Oak		YES	No
T167	38	Coast Live Oak	YES		No
T170	48	Coast Live Oak	YES		No
T171	15	Madrone		YES	No
T172	32	Coast Live Oak		YES	Yes
T173	16	Coast Live Oak		YES	No
T174	16	Coast Live Oak		YES	Yes
T176	12	Coast Live Oak	YES		No
T177	24	Black Oak	YES		Yes
T182	24	Coast Live Oak		YES	No
T198	11	Black Oak		YES	Yes - hollow from broken branch at base, also woodrat nest in base
T199	13	Madrone		YES	Yes - basal hollows and woodpecker cavities
T213	45	Coast Live Oak	YES		No - woodrat nest in base
T214	26	Coast Live Oak	YES		No
T215	44	Coast Live Oak	YES		No
T218	32	Coast Live Oak		YES	No
T220	16	Valley Oak	YES		No
T222	24	Black Oak	YES		No - no habitat in clump, not sure if found tree
T223	16	Black Oak		YES	No - no habitat in clump, not sure if found tree
T224	22	Black Oak		YES	No - no habitat in clump, not sure if found tree
T225	28	Valley Oak		YES	Yes - bole cavity, also in little tree next to it
T226	14	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T227	16	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T228	26	Valley Oak	YES		No - no habitat in clump, not sure if found tree

Tree ID	DBH	Species	Trim	Removal	Potential bat habitat?
T229	15	Valley Oak		YES	No
T230	17	Valley Oak		YES	No
T231	18	Valley Oak		YES	No
T232	18	Valley Oak	YES		No - no habitat in clump, not sure if found tree
T233	15	Valley Oak	YES		No - no habitat in clump, not sure if found tree
T234	14	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T235	12	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T236	32	Valley Oak		YES	No
T239	42	Valley Oak		YES	No
T240	26	Valley Oak		YES	No
T241	38	Valley Oak	YES		No
T245	16	Valley Oak		YES	No
T246	13	Valley Oak		YES	No
T247	40	Valley Oak	YES		No
T248	16	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T251	14	Valley Oak		YES	No -no habitat in clump, not sure if found tree
T252	12	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T254	13	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T255	14	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T256	18	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T257	18	Valley Oak		YES	No
T258	42	Madrone		YES	No
T259	16	Valley Oak		YES	No
T260	42	Coast Live Oak	YES		No
T262	20	Valley Oak	YES		No
T264	18	Valley Oak	YES		No
T268	32	Coast Live Oak	YES		No
T270	28	Madrone	YES		No
T272	14	Pine	YES		No

Tree ID	DBH	Species	Trim	Removal	Potential bat habitat?
T273	20	Pine	YES		No
T274	14	Madrone	YES		Yes - avoid woodpecker cavity
T275	12	Black Oak	YES		No
T276	28	Black Oak			No
T277	14	Pine	YES		No
T278	32	Valley Oak	YES		Yes - two hollow branches
T279	24	Valley Oak	YES		Yes
T280	42	Valley Oak	YES		Yes - avoid and/or inspect cavities
T281	16	Valley Oak		YES	No
T282	12	Bay	YES		No
T285	16	Valley Oak		YES	No
T290	24	Valley Oak		YES	No
T291	18	Valley Oak		YES	No
T292	30	Valley Oak		YES	No
T293	18	Valley Oak		YES	Yes - one dead branch
T297	42	Valley Oak	YES		Yes - cavities
T298	32	Valley Oak	YES		Yes - broken branch cavity
T299	25	Valley Oak		YES	Yes - black oak
T300	18	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T301	14	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T302	14	Valley Oak		YES	No - no habitat in clump, not sure if found tree
T303	36	Valley Oak	YES		No
T304	26	Black Oak		YES	Yes - basal and branch cavities and crevices
T305	22	Valley Oak	YES		No
T306	20	Madrone		YES	No
T307	16	Valley Oak	YES		No
T308	28	Valley Oak	YES		No
T309	26	Valley Oak		YES	No
T311	42	Valley Oak	YES		Yes - cavity
T313	14	Valley Oak	YES		No
T314	13	Valley Oak	YES		No
T315	32	Valley Oak	YES		No
T316	32	Bay	YES		No
T317	22	Valley Oak	YES		No
T319	24	Valley Oak	YES		No

Tree ID	DBH	Species	Trim	Removal	Potential bat habitat?
T320	15	Valley Oak	YES		No
T322	26	Coast Live Oak	YES		No
T323	20	Valley Oak	YES		No
T324	48	Coast Live Oak	YES		No



Photo 1: Potential roost crevice in unoccupied barn; no bat sign observed.



Photo 2: View north from Pole 23. Note closed canopy and dense understory lacking flyway space.



Photo 3: Potential bat habitat cavity in tree branch.



Photo 4: Cavity in tree branch that could provide bat roosting habitat.



Photo 5: Cavity in tree that could provide bat roosting habitat.



Photo 6: Cavity in tree that could provide bat roosting habitat.



Photo 7: Cavity in tree that could provide bat roosting habitat.



Photo 8: Cavity in tree that could provide bat roosting habitat.



Photo 9: Snag T199 with abundant crevices and cavities.



Photo 10 Potential bat crevice under exfoliating bark.



Photo 11: Habitat at an emergence survey location.

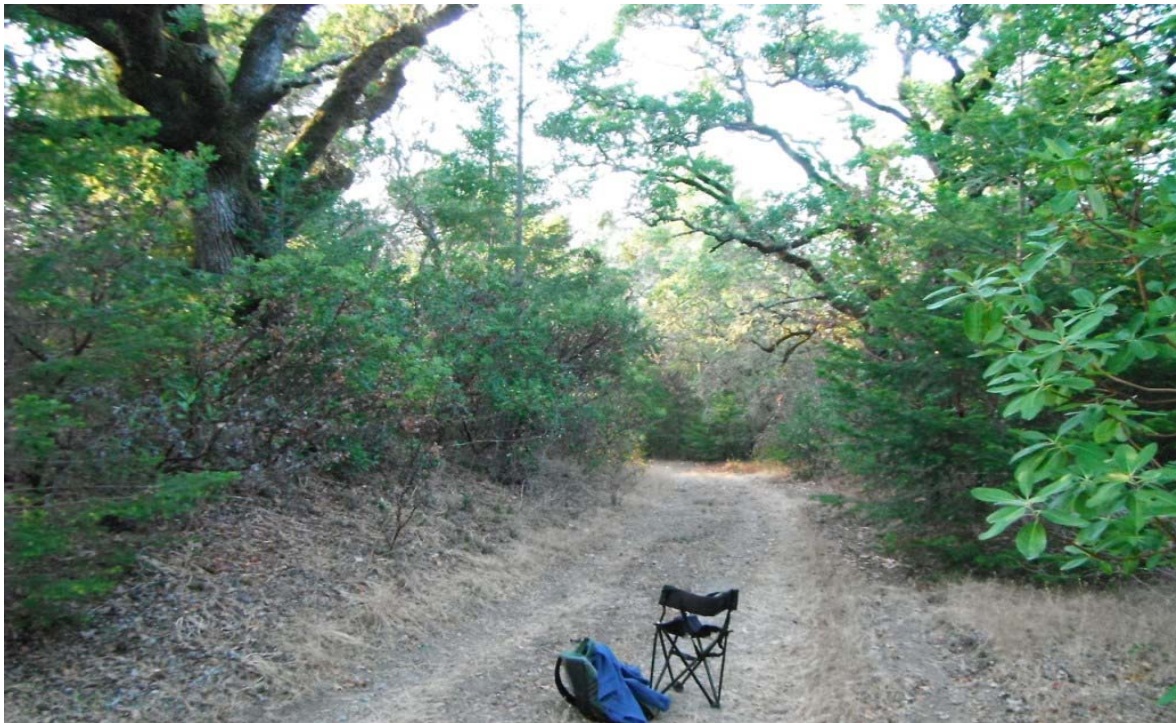


Photo 12. Habitat at an emergence survey location