

Local Assistance Grant

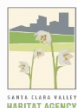
SR-152 Pacheco Pass Wildlife Connectivity Study

October – December 2021



Prepared by: Pathways for Wildlife

For the Santa Clara Valley Habitat Agency



In this update we show highlights from our findings during the months of October, November, and December collected at the eastern portion of the study area. Our report begins at bridge 370441, and spans across to culvert PM 34.78, the last culvert to the east (Figure 2).

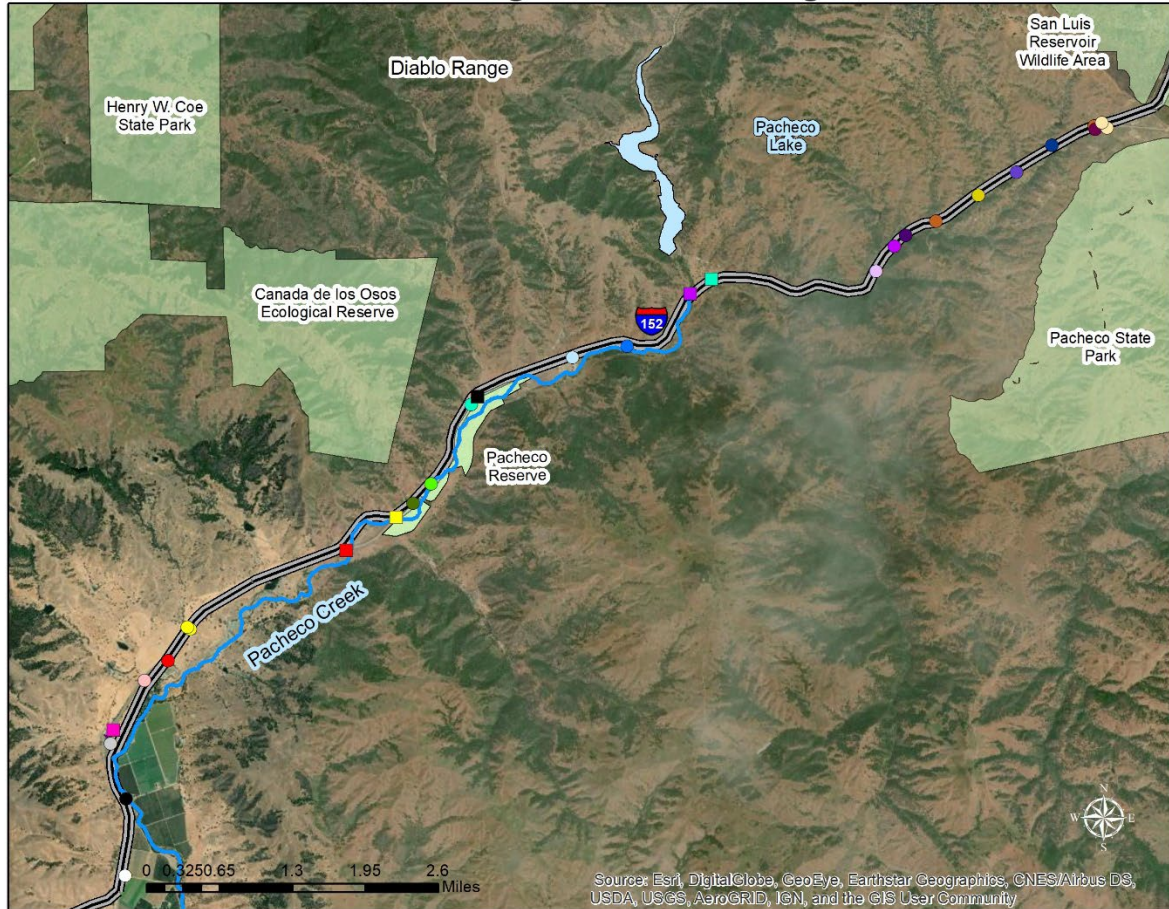
The rain events at the eastern portion of the study area did have impacts at some sites, however, at other sites the impacts were brief. For example, only one culvert out of this portion of the study area had one opening flooded with water blocking terrestrial mammal passage. Other culverts diverted water efficiently to areas beyond the openings and the culverts themselves are not holding water. The rain events around 2021-12-27 were recorded on camera and acted as flash flows channelized by the steep ravines connecting the culverts.

Also included in this report is brief information containing the location, size, and type of structure highlighted in this report.





## SR-152 Camera Monitoring Stations at Bridges and Culverts



### Legend

#### SR-152 Bridges-7 bridge sites

#### Location

- Casa De Fruita Bridge
- Cedar Creek Bridge
- Large Bridge by Fire Station
- Pacheco Creek Reserve Bridge
- Pacheco Creek Bridge past Bells Station
- South Fork of Pacheco Creek Bridge
- Ortega Creek Bridge

#### SR-152 Culverts-24 monitoring sites

#### PostMile

- 22.09 EB
- 22.36 EB
- 22.81 EB
- 24.03 EB
- 24.3 EB
- 24.65 EB
- 27.09 EB
- 27.24 EB
- 28.06 EB
- 33.04 EB

- 29.09 EB
- 29.6 EB
- 32.3 EB
- 32.61 EB
- 32.75 EB
- 33.52 EB
- 33.95 EB
- 34.3 WB
- 34.64 EB
- 34.78 EB



Figure 2. Map of SR-152 monitoring locations.



 Specifications

Location (UTM)	Easting: 652153, Northing: 4101204
Size and type	Large, triple section open span bridge.
Visibility through Structure	Yes. Barbed wire fencing at eastbound opening at outer sections.

This is a large, triple section, open span bridge that facilitates water from Pacheco Lake to the north (Figure 3). Because of the proximity to Pacheco Lake, Bridge 370441 is the only site that

holds water all year. This bridge is large enough to provide safe thoroughfare for deer, as well as hold a constant source of water for wildlife. The design of the bridge allows Pacheco Creek to flow through the center section (where most of the water remains), and partially through the outer western section. The eastern section has a levelled area with dirt substrate, and with the water channeled through the center and western sections, remains dry and allows wildlife to cross through (Figures 4 and 5). The two outer sections do have riprap that taper halfway up to meet the structural walls; however, most of the area in both sections have dirt substrate.

The landowner on the eastbound side has cattle and there is four-strand barbed wire-fencing placed at the openings of the outer sections. There is no fencing at the center section. The habitat beyond the eastbound opening riparian, however it leads to open grassland up into the hills. On the westbound side there are no cattle, and no fencing at any section. The habitat beyond the westbound opening is thick riparian with blackberry (*Rubus ursinus*), bay laurel (*Umbellularia californica*), wild rose (*Rosa californica*), and sycamore (*Platanus racemosa*) situated directly in front of the westbound opening and continuing north along Pacheco Creek.

Species recorded at this site include deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), wild pig (*Sus scrofa*), raccoon (*Procyon lotor*), and more. There are several successful deer crosses recorded on a routine basis each month.



Figure 4. View of eastbound opening showing water level, and fencing. Facing west.



07:56

2021-10-02 Two deer browsing at westbound opening.



2021-10-04 Bobcat at westbound opening.



 Specifications

Location (UTM)	Easting: 652489, Northing: 4101444
Size and type	Medium, dual-section open span bridge with smaller section for riprap.
Visibility through Structure	Yes.

Bridge 370466 facilitates the flow of South Fork Pacheco Creek. It is a dual span bridge, with an additional smaller section on the west side containing riprap (Figure 6). The center and

eastern sections are the largest, and water mainly flows through the center section, leaving the outer eastern section open for wildlife passage (Figure 7). Most notably, this is the last bridge in the eastern portion of the study area, and the last site in the east where deer have been documented successfully crossing through.

Additionally, unlike bridge 370441, this site does not hold water year-round. Instead, it was completely dry from July 2021 to the end of October 2021.

There is four-strand barbed wire fencing running along the westbound opening of the western and center sections, yet there is electrified fencing at the eastern section. There is also cow presence at both the westbound and eastbound sides of the highway. The cows are separated only by the fencing at the westbound opening. In fact, this camera station detects a high amount of cow presence as they routinely group together under the bridge.

The top three species recorded at this site are deer, wild pig, and coyote. It is noteworthy to add that all species are travelling through the barbed-wire fence as they successfully cross under the bridge.

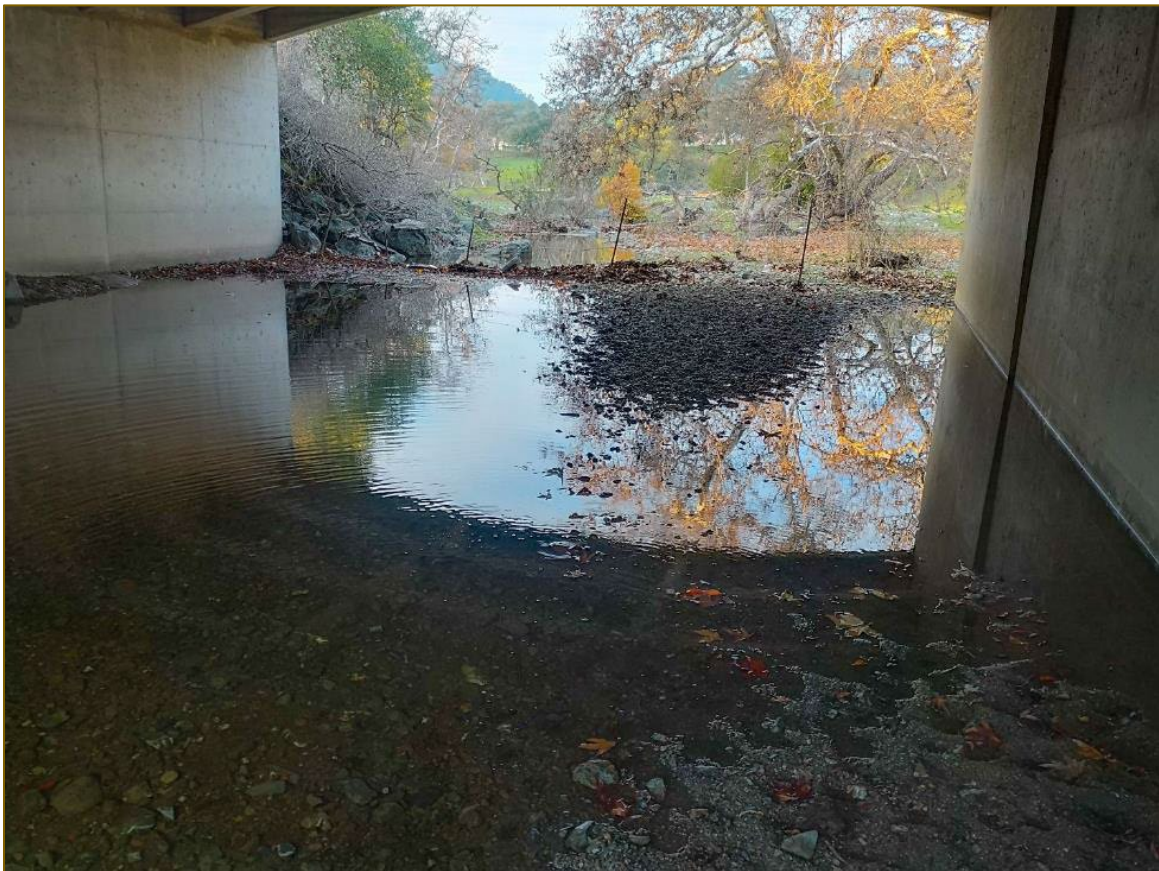


Figure 7. View of water level and fencing on 2021-12-21 at center section of bridge 370466. Facing north.



Coyote  
passage  
on 2021-  
11-09



Deer  
passage  
on 2021-  
11-10



Wild pigs  
crossing  
on 2021-  
11-12



152 PM 32.3 Westbound and Eastbound





## Specifications

Location (UTM)	Easting: 654811, Northing: 4101581
Size and type	12' cement arch culvert. Cement floor. Declines to the south.
Visibility through Structure	Yes.

Culvert PM 32.3 is a very high use culvert for medium sized wildlife (Figure 8). In addition to being a high use culvert for a variety of species, this culvert also has one of the highest detections of gray fox (*Urocyon cinereoargenteus*) use. This includes passages of adult gray foxes traveling with pups. We recorded adults crossing with at least 2 pups on numerous occasions throughout this previous summer and into fall (2021). In addition to gray fox, there are also bobcat, coyote, raccoon, opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*) passages. Adding to the diversity, this is the only culvert where we documented puma (*Puma concolor*) presence.

Making this culvert more interesting, water drains from the westbound to the eastbound opening leading to an approximate four-foot drop at the eastbound opening. This design allows for water to fill up in front of the eastbound opening forming one of the largest pools there are throughout the study area (Figure 9). This pool of water remains for the majority of the year only drying up completely in September. The condition of this pool of water creates habitat highly suitable for western pond turtle (*Actinemys marmorata*), and California red-legged frog (*Rana draytonii*). For example, almost every outing during camera servicing, we have seen western pond turtles sunning on a rock, or frogs jumping into the water.

In fact, during camera deployment, we observed a red-legged frog near a pile of leaves at the eastbound opening for approximately 15 minutes while we set the camera station. As we finished, the frog remained near the pile of leaves and was still there as we packed our gear and left. On the next visit to this site, we watched (and recorded) a western pond turtle feeding just below the surface of the water as we serviced the camera.

After these events, we changed our route to the camera station so we would not disturb the frogs, turtles, and habitat. This new route turned out to be advantageous because it allowed us to access the camera station and continue to observe the turtles sunning themselves from a distance as we approached the site.

Another factor contributing to the high amount of wildlife passages through this culvert is the opportunity to travel from the culvert to the hillside (and vice versa) at the eastbound

opening even when the pool of water is at its highest. This is because the arch of the culvert tapers down to meet the floor of the culvert creating a cement walkway for wildlife utilize as they travel to and from the hillside.

Lastly, the rain event on 2021-12-27 caused a type of flash flowing water which could have pushed the remaining turtles and frogs downstream to the west (Figure 10). We will closely document frog and turtle presence as the current was quite strong. The most recent turtle sighting was on 2021-11-04.



Gray fox passage on  
2021-11-22

Striped skunk  
passage on  
2021-12-02



Raccoon passage  
on 2021-12-10



Bobcat passage and  
scrape on  
2021-12-10

Coyote passage on  
2021-12-11



Gray fox passage on  
2021-12-13





Facing North.



152 PM 32.61 Westbound



Figure 11. Westbound opening of culvert PM 32.61. Facing south.



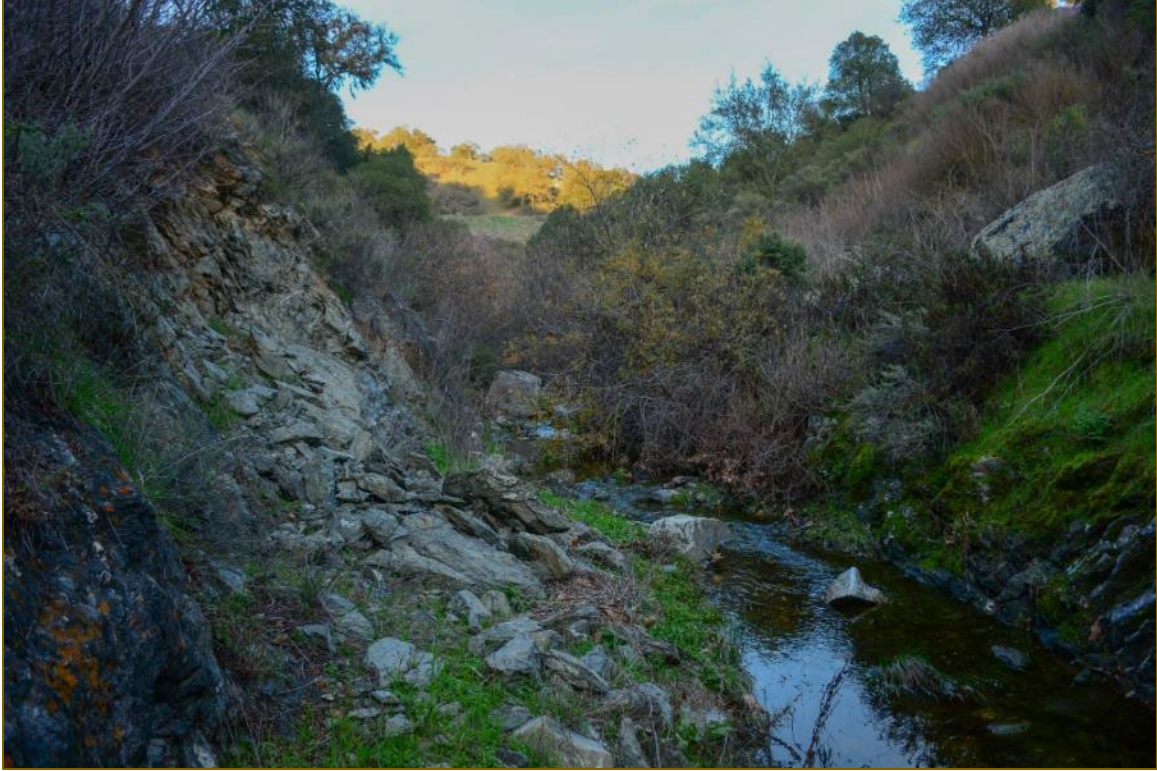
## Specifications

Location (UTM)	Easting: 655090, Northing: 4101990
Size and type	10' cement arch culvert. Cement floor. Declines to the south.
Visibility through Structure	Yes.

Situated at the bottom of steep ravines, this culvert has a sharp decline from the westbound to the eastbound opening (Figure 11). Along with this decline, there is an approximate three-foot drop at the eastbound opening creating enough depth for a small pond which keeps water throughout the majority of the year (Figures 12 and 13). At the westbound opening, there are multiple pools of water spread out and spanning to culvert PM 32.75 to the east. Since the culvert declines to the south (eastbound opening), water does not form a pond like the westbound opening.

The water conditions at this location are similar to culvert PM 32.75 in terms of providing highly suitable western pond turtle habitat. For reference, this was one of the three different sites where we observed multiple western pond turtles on different occasions. We observed three individuals sunning on a rock as we approached the culvert on three separate visits.

However, there has not been a single terrestrial mammal approach or passage at this culvert since deployment. One of the causes could be the pond of water in front of the eastbound opening, along with the steepness of the ravines beyond the westbound opening. Another note, for a rather remote location, there have been multiple people walking through to spray paint the culvert (Figure 14). The camera is detecting birds, and bats showing the camera is fully functional (Figure 15).







#### Specifications

Location (UTM)	Easting: 655296, Northing: 4102067
Size and type	8' cement arch culvert. Cement floor. Declines to the north.
Visibility through Structure	Yes.

Since the end of September, there have been no data recorded of mammal activity at this culvert (Figure 16). This is a drastic decline when compared to prior months as this culvert had one of the highest deer detection rates throughout the entire study area; albeit all detections were approaches, with zero crosses.

For example, prior to the end of September we were regularly documenting families of deer browsing on vegetation near the eastbound opening of the culvert. Bucks would also routinely head east and west passing by the culvert opening, and we have even seen live sightings of females with fawn during camera checks.

A few events took place that may provide an explanation for the non-capture of images of terrestrial mammals at this location. The first was on 2021-09-06 when we recorded a coyote feasting on two parts of a deer carcass (Figure 17). One part was the torso, which the coyote carried in front of the camera station. The other part was the hind end, which was also carried to the same area in front of the camera station and culvert. The coyote proceeded to feed on the carcass in front of the eastbound opening of the culvert (pictured below and video also recorded of the event).

After this, our coyote detections increased. We recorded 9 coyote detections during the remainder of September (a duration of 3 weeks). While the coyote presence increased, the deer detections decreased. The last deer detection occurred on 2021-09-13 when a buck passed by the eastbound opening (Figure 18).

The next event, in early November, was the pooling of water at the westbound opening. Since 2021-11-08, water began channeling to the westbound opening forming a pond (Figure 19). Throughout November the depth of the pond continued to increase so much so that we had to find an alternative route to the camera station as we would normally pass through the culvert. By middle of December, the water level had risen so much that approximately 1/4<sup>th</sup> of the northern section of the culvert was filled with water.

A special note about the pond at the westbound opening of the culvert: on 2021-11-04 I found another western pond turtle (Figure 20). This culvert holds water throughout the majority of the year, and although it may be an obstacle for terrestrial mammal movement, it seems to be great western pond turtle habitat. This is less than 1/2 a mile east of the pond where we found a separate area with western pond turtles. This now makes the 3<sup>rd</sup> pond where we found western pond turtles, and the 4<sup>th</sup> recorded sighting.







Specifications

Location (UTM)	Easting: 655691, Northing: 4102271
Size and type	10' cement box culvert.
Visibility through Structure	Yes.

This culvert is set above a smaller drainage located to the west and at the bottom of a deep ravine (Figure 20). The benefit of having a lower drainage below this culvert is water gets diverted via the smaller drainage instead of this structure. For example, during the heaviest and most constant rainfall in December, this culvert had no water running through it.

The eastbound opening has a gate placed in front of it, but there is a gap large enough that medium sized wildlife can still cross through.

At 10' feet high, this culvert is large enough to facilitate deer movement, however no deer approaches have been recorded to date. We have recorded a variety of other species, such as coyote, gray fox, bobcat, racoon, and more successfully crossing through (Figure 21).

Furthermore, the substrate throughout the culvert is dirt, and numerous tracks left behind by coyote, bobcat, striped skunk, and raccoon are visible. This is a high-use culvert with 10 – 15 crosses per month. An important note about this structure is since the time of deployment, this camera has recorded consistent wildlife passage with almost no change in passage counts. Even during the recent heavy rain events.



Figure 20. Westbound opening of PM 33.04.





 Specifications

Location (UTM)	Easting: 656249, Northing: 4102655
Size and type	4' cement round culvert. Slight decline to the eastbound opening.
Visibility through Structure	No. Culvert has no visibility to eastbound side.

The westbound opening of culvert PM 33.52 faces west, while the eastbound opening faces south creating an angle 1/4<sup>th</sup> of the way into the culvert (Figure 22). The combination of the angle and decline eliminates visibility to the eastbound opening. Even with the lack of visibility through the culvert, we have documented successful wildlife passages. Although not a high use culvert, there are a few (1-3) successful crosses on average per month by different animals (Figures 23 and 24). Moreover, this area does not hold water at the opening compared to the culverts to the east.





Figure 25. West bound opening of culvert PM 34.64. Facing north.



Specifications

Location (UTM)	Easting: 657968, Northing: 4103641
Size and type	12' cement box culvert.
Visibility through Structure	Yes.

This site has multiple, medium-size species use on a consistent basis. We have recorded species such as raccoon, coyote, striped skunk, and bobcat approaching, and successfully crossing through this culvert (Figure 25). There have been no deer passages or approaches since camera deployment. There is a gate placed at the westbound opening of the structure, most likely acting as a blockade from cow passage. The eastbound opening has no fence and is clear of any debris. Beyond the eastbound opening there is a ravine that immediately leads west. Also, there is an approximate 2-foot drop from the floor of the culvert creating a small pool of water (Figure 26).

Beyond the westbound opening there is open grassland and a wide shallow pond which spans to the eastbound opening of culvert PM 34.78 (next culvert to the east). After the first rain in November, both the westbound and eastbound openings began holding small pools of water. However, the eastbound opening held a deeper pool due to the two-foot drop. In December, our camera recorded the rising water levels and became submerged. Prior to that, we regularly recorded wildlife passages.

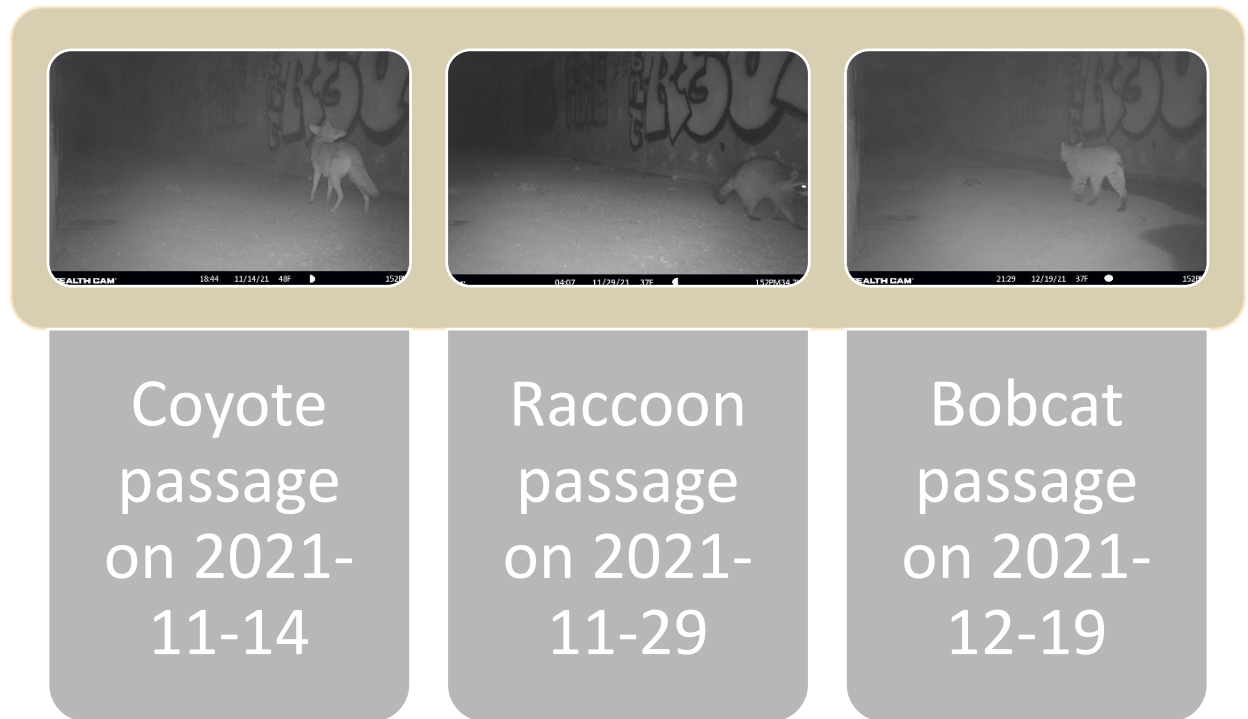




Figure 26. Culvert 34.64 eastbound opening. Facing north.



152 Site PM 34.78 Eastbound



Figure 27. View of westbound opening. Facing north.

Specifications	
Location (UTM)	Easting: 658129, Northing: 4103617
Size and type	4' round culvert.
Visibility through Structure	Yes.

From October to December there have been no data collected of successful wildlife usage or approaches at this structure (Figure 27). This is a drastic difference compared to prior months, as there have been recorded presence of coyote approaching, and passages at this site. One explanation for the decline in detections could be the presence of construction crews (Figure 28). In September, one crew began replacing a property boundary fence directly behind the camera. New stakes, and five-strand barbed wire fencing were installed. Furthermore, the turnout located above the culvert, and the area behind the camera station were both utilized to stage equipment (Figure 29).

Then, in October, the entire turnout area above the culvert was regraded, and temporary fencing was replaced with new fencing. This construction lasted until the rain events. Since this culvert is a low use culvert to begin with, it can be assumed that wildlife shifted their routes to culvert PM 34.64, which is very close to the west. In any case, this is the first period where we have not recorded a single animal at this culvert since camera deployment.

Habitat beyond both openings is open grassland leading to the hills. There are also small ponds shortly beyond both openings. The westbound opening has a grate placed at the opening, presumably to prevent cows from entering. There is also cow presence at both properties on both sides of the highway.



## Local Assistance Grant: Coyote Valley Road Ecology Study

October to December 2021 Update

### 1.0 COYOTE VALLEY MONITORING STATIONS & KEY FINDINGS

Sixty-three cameras were set up during the months of March and April 2021 to record if and where wildlife are crossing at-grade across Santa Teresa Boulevard and Bailey Avenue between the newly protected North Coyote Valley properties (Figure 1). We are also monitoring four culverts within the study area and a bridge at Bailey Avenue to determine if wildlife are traveling safely under the roads (Figure 1).

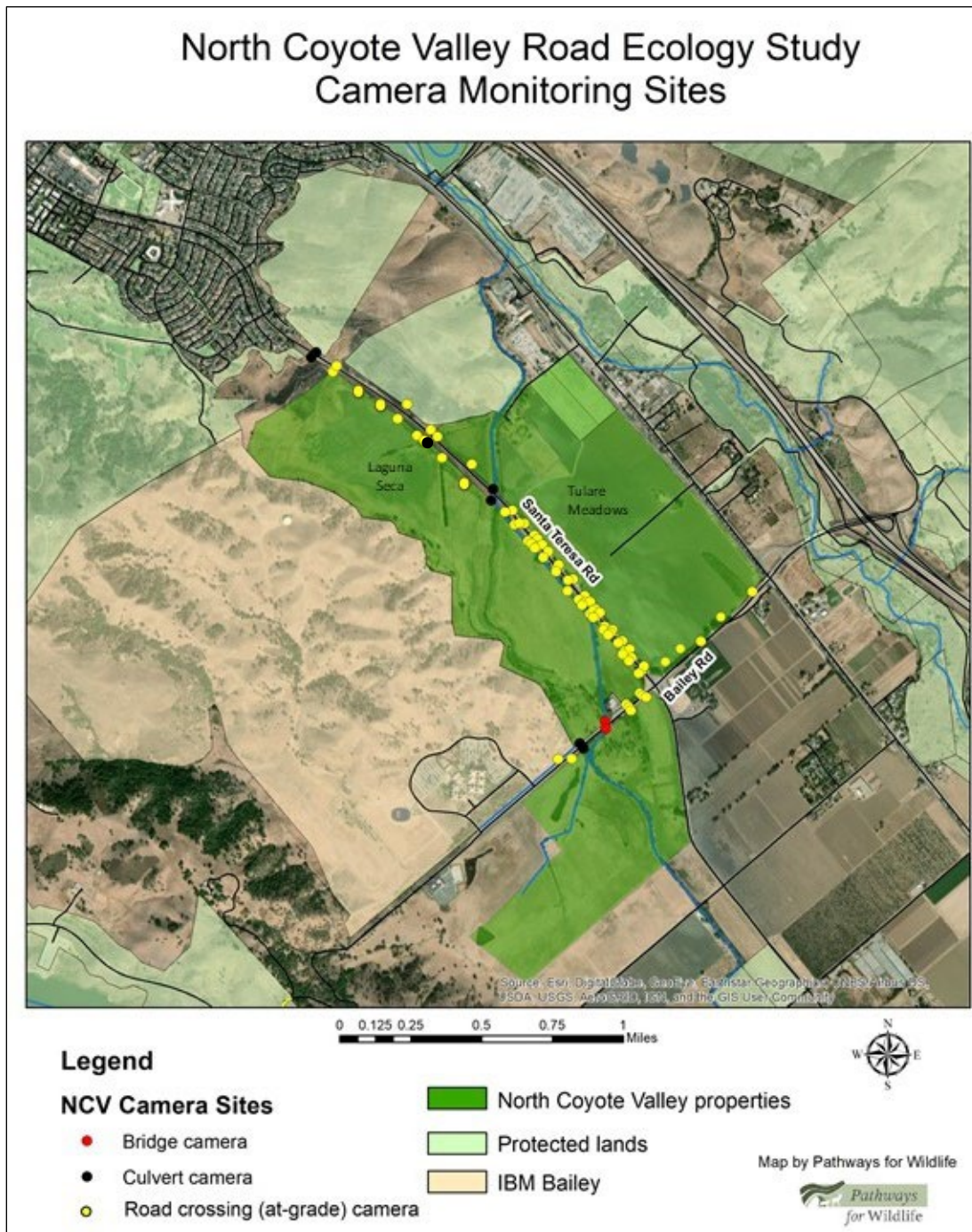


Figure 1. Coyote Valley monitoring sites.

## 1.1 CULVERTS: SEASONAL VARIATION

There are four culverts and one bridge within the study area. These culverts tend to flood during rain events and then remain flooded for long periods of time. In December we had a significant storm event, resulting in Coyote Valley receiving approximately 10.6 inches of rain. Following up on the last June-September update, which discussed the problem of flooded culverts effecting wildlife movement through them, we included photos from January 13<sup>th</sup> 2022, of the current status of each culvert.

### 1. BAILEY AVENUE CULVERT-WINTER CONIDITION

The Bailey Avenue culvert is flooded by water on both the south and north sides (Figures 2-4). We were previously recording multiple species such as bobcat, coyote, skunk, and a raccoon family traveling both south and north through the culvert. However, since the culvert has been flooded, we have not recorded any wildlife traveling through the culvert.



Figure 2. Bailey culvert, south side on 1/13/2021.



Figure 3. Bailey culvert, south side on 1/13/2021.



Figure 4. Bailey culvert, north side on 1/13/2021.

## 2. FISHER CREEK CULVERT AT SANTA TERESA BOULEVARD-WINTER CONIDITION

The Fisher Creek culvert at Santa Teresa Boulevard is flooded by water (Figure 5). This large dual box culvert typically remains flooded throughout the year as Valley Water pumps water through Fisher Creek for supplying water to east San Jose. We have not documented any wildlife movement through these culverts.



Figure 5. Santa Teresa Boulevard culvert, west side on 1/13/2021.

### 3. LAGUNA SECA CULVERT AT SANTA TERESA BOULEVARD - WINTER CONIDITION

The Laguna Seca culvert at Santa Teresa Boulevard is flooded by water (Figure 6). This culvert was dry during the summer months, however, there is fencing set up on the west side of the culvert (Figure 7). This may be restricting wildlife movement through the culvert as we have only document raccoons traveling through a small opening at the bottom right section of the fence (Figure 8).



Figure 6. Laguna Seca culvert at Santa Teresa Boulevard culvert, west side on 1/13/2021.



Figure 7. Laguna Seca culvert at Santa Teresa Boulevard culvert, west side on 1/13/2021.



Figure 8. Raccoon adult traveling with juveniles through the Laguna Seca culvert at Santa Teresa Boulevard culvert on 8/7/2021.

#### 4. COYOTE ALAMITOS CANAL AT SANTA TERESA BOULVEVARD-WINTER CONIDITION

The Coyote Alamitos Canal is not inundated by water on the west side at Tulare Hill or in the mid-section (Figures 7 and 8). However, there is a pool of water on the east side of the canal (Figure 9). Since the beginning of the monitoring period, we have recorded very few detections of wildlife traveling through the culvert. Only several raccoons have been recorded traveling through the canal under Santa Teresa Boulevard.



Figure 7. Coyote Alamitos Canal at Santa Teresa Boulevard, west side at Tulare Hill on 1/13/2021.



Figure 8. Coyote Alamitos Canal at Santa Teresa Boulevard, mid-section on 1/13/2021.



Figure 9. Coyote Alamitos Canal at Santa Teresa Boulevard, east side on 1/13/2021.

## 1.2 FISHER CREEK AT THE BAILEY BRIDGE: SEDIMENT BUILD UP

Since 2008, the sediment has significantly built up over time within the three sections of the Bailey Bridge at Fisher Creek (Figures 10-12). The bridge is currently flooded in the mid-section (Figure 13).



Figure 10: Bailey Bridge at Fisher Creek in 2008.



Figure 11: Bailey Bridge at Fisher Creek on 1/13/2022.



Figure 12: Bailey Bridge at Fisher Creek on 1/13/2022.



Figure 13: Bailey Bridge at Fisher Creek on 1/13/2022.

Throughout a monitoring period from 2008-2009, multiple species were recorded traveling through the Bailey Bridge at Fisher Creek. Of particular importance, deer were recorded routinely traveling through the bridge (Figure 14). The only other structure in Coyote Valley large enough to facilitate large mammal movement under roads is the Santa Teresa Boulevard Fisher Creek culvert. However, this culvert is most often flooded throughout the year, leaving only the Bailey Bridge to facilitate large mammal movement under the roads within the study area. In Figure 15, the sediment build up is so high, it is unlikely that the bridge will facilitate large mammal movement through it. Since the

beginning of the monitoring period, we have only recorded raccoons using the bridge to travel under Bailey Avenue. We highly recommend clearing out the sediment build-up at the Bailey Avenue bridge to make it more permeable for large mammal movement.



Figure 14: Deer crossing beneath the Bailey Bridge at Fisher Creek on 6/1/2008, from the south most eastern section of the bridge.



Figure 15: Bailey Bridge at Fisher Creek on 1/14/2021, view from the camera station at the south most eastern section of the bridge.