



Biology

4.0 MASTER RESPONSE 3- WILDLIFE CORRIDORS



MASTER RESPONSE 3 – WILDLIFE CORRIDORS

This master response addresses comments on the RDEIR related to wildlife corridors, and the project's potential impacts on such corridors. The primary comments related to this issue are found in letter RD-12 (Big Sur Land Trust), as well as Letter RD-2 (California Department of Fish and Wildlife), and RD-14 (LandWatch Monterey County). As the Big Sur Land Trust (BSLT) letter (together with attachments from Pathways for Wildlife) is devoted entirely to the RDEIR's treatment and analysis of wildlife corridors, the following responses generally correspond to that letter.

1. Wildlife corridor definition. The definition of a wildlife corridor used in the RDEIR is consistent with the definition related to conservation ecology. The term corridor refers to the area that is used by organisms to move between patches of suitable habitat (Soule and Gilpin 1991; Hilty et al. 2006). As its name implies, it is a connection between areas of suitable habitat such that it provides connectivity for plants and animals to exchange genes through movement between those areas (Crooks and Sanjayan 2006). In a review of the terminology, Meiklejohn, Ament, and Tabor (2009) reported that all definitions for wildlife corridors referred to the regions of the landscape that facilitate the flow or movement of individuals, genes, or ecological processes. A draft white paper (Western Governors' Association 2009) calls for standardization of data and definitions so connectivity analyses can be performed across state boundaries. The definition identified in the white paper states that "wildlife corridors are crucial habitats that provide connectivity over different time scales (including seasonal or longer), among areas used by animal and plant species...and serve to maintain or increase essential genetic and demographic connection of populations." This is consistent with the terminology used in the RDEIR. Home ranges are areas where individual species breed, feed, and find optimal conditions for shelter. Within long wildlife corridors some small species of plants and animals may have home ranges; however, these are usually considered separately from the connectivity function of the corridor. The RDEIR (pages 3.3-29, -30, -66, -67, and -68) provides a sufficient and accurate description of wildlife corridors and mitigation measures have been developed to address impacts to the movement corridor. Comments regarding definition are acknowledged; however, no change is recommended in the RDEIR.

2. Citations and references to wildlife corridor data. Comments regarding the details of studies cited are noted. Please see RDEIR text clarifications below:

RDEIR Pages 3.3-29 and -30

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Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one home range to another. A home range refers to the territories established by individuals for breeding and foraging. Corridors link home ranges and are present in a variety of habitats. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, preserve a species' distribution potential, and retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource. ~~In 2009,~~ In a 2010 publication, Connectivity for Wildlife (2009) prepared the Central Coast Connectivity Project, Northern Monterey County Linkages: Report on the Mount Toro to Fort Ord Reserve Study 2008-2009, for the Big Sur Land Trust.

A recent study by Diamond et al. (2013 ~~2010~~) confirms the importance of the undercrossing at El Toro Creek for wildlife crossing of State Route 68. Between October 2008 and October 2009, 404 individual animal detections were recorded via remote sensor cameras beneath State Route 68. The majority of detections were bobcat, deer, and wild pig, but also included coyote and raccoon. Several individual animals and their offspring were observed multiple times. However, most of the observations were identified as the same individual using the underpass on numerous occasions. For example, of the 404 detections, a female as many as seven different bobcat (including two adults and two different litters of kittens) was were recorded making 97 trips over a 110 day the two-year monitoring period. According to Diamond et al. (2011 ~~2010~~), this the adult female was using the eastern side of the crossing as its natal range, as she was documented traveling with her kittens, which were also recorded multiple times. The area beneath the bridge and on either side was being used as a home range by this individual bobcat. ~~as opposed to a wildlife corridor between home ranges.~~ In addition, dusky-footed woodrats, a species of special concern, were also detected using the underpass and on either side of the underpass there are existing dusky footed woodrat nests. One mountain lion was detected.

Wildlife movement at the bridge may be facilitated by the protection and cover provided by riparian habitat along Harper Creek. All of the detections were made within the creek bottom, and it is not known if the species observed continue to use the Harper Creek riparian corridor and traverse underneath San Benancio Road farther upstream or leave the riparian corridor and move through the project site. Diamond et al. (2011 ~~2010~~) concluded that a portion of the project site southeast of State Route 68 is critical in facilitating movement of animals seeking access to and from the habitats within the Fort Ord Reserve. The undercrossing is in close proximity to the Ferrini Ranch House, associated outbuildings, and garden area, which, during the time of the survey and for most of its history, has been occupied by a family and several large dogs, suggesting that despite current human use, wildlife use this undercrossing.

As noted above, the definition of a corridor refers to the linkage between home ranges. A corridor for large mammals does include home ranges for small animals; however, the bobcat was using the area beneath the bridge as a home range. The fact that a bobcat and her litter use the underpass has been acknowledged in the RDEIR.

3. Wildlife corridor widths. The RDEIR reflects information from a synthesis of studies in wildlife corridor biology regarding the recommended width of the wildlife corridor, which found that 328 feet (0.1 km) was sufficient for small mammals, amphibians, and birds. The BSLT comment states that mountain lions require a width of 2 km. While larger animals may use wide corridors in natural conditions, a narrow corridor is not restrictive to their passage. Mountain lions, for example, are routinely observed moving in suburban areas and are known to use culverts and bridges as crossings beneath highways.

The RDEIR incorporates additional information collected by Diamond et al (2010) using camera stations positioned under the Highway 68 bridge at El Toro Creek. This information documented the use of the creek by a number of wildlife species. The DEIR also discussed the most recent scientific literature on wildlife corridors that reviewed over 48 scientific papers and found that a width of 100 meters or 328 feet as suitable for most species (Hennings and Soll 2010).

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As summarized by Hennings and Soll (2010):

"Studies and models suggest that wider corridors direct and increase animals' movement rates between patches, acting a bit like drift fences or funnels guiding animals toward habitat patches (Haddad 1999). Some researchers suggest that larger habitat patches require larger movement corridors (Kubes 1996). Wider corridors are obviously preferred, but land use and cost constraints favor narrower corridors (Beier et al 2009). The key goal should be to provide connectivity between populations and prevent reproductive isolation. There are no hard and fast rules for corridor width design; educated but subjective decisions must be made."

Animals such as amphibians and small mammals may spend a considerable time within a corridor; whereas large animals will move quickly through corridors to areas that are more supportive of their biological and ecological requirements. Within suburban areas such as the project site, many existing constraints need to be considered. Factors affecting corridor use such as highly traveled highways, existing residential use, and the land uses within the corridor affect how animals use these areas.

Corridors for large animals such as mountain lions are much harder to study given the scarcity of these animals and the few events that can be studied. Placing transmitters can provide useful information; but modeling is often used to establish estimated widths for these species based on their home range and habitat requirements. Large scale regional studies using such models and assuming natural habitat conditions suggest that corridor widths of up to 2 km may be optimal. This recommendation is based on use of theoretical models that assumed areas that were far more rural in nature than the project site. Thus, the assumptions and methodologies applied there are not directly applicable to the project site.

This does not mean, however, that mountain lions do not use narrower corridors. There is evidence, for example, that mountain lions can use fairly narrow habitat remnants that are not in fact good lion habitat (Beier 1996). In addition, mountain lions have frequently been observed using culverts and bridge overcrossings while moving between home ranges.

When designing wildlife corridors, Paul Beier, the leading researcher in mountain lion movement and a strong proponent of wildlife corridors warns against planning for the largest animals (Beier et al. 2008):

We argue against designing a linkage solely for large carnivores—or any single species. Many other species need linkages to maintain genetic diversity and metapopulation stability. Furthermore, most large carnivores are habitat generalists that can move through marginal and degraded habitats, and a corridor designed for them does not serve most habitat specialists with limited mobility.

An important consideration when considering wildlife corridors are the existing conditions that may restrict movement. For example, Highway 68, with over 24,000 trips per day, has a significant impact on the movement of wildlife. A review of 79 studies found that negative effects of roads on wildlife outnumbered positive effects by a factor of five (Fahrig and Rytwinski 2009). The review indicated that amphibians and reptiles tended to show negative effects. Birds primarily showed negative or no effects, small mammals generally showed either positive effects or no effect, mid-sized mammals showed either negative effects or no effect, and large mammals showed predominantly negative effects. The findings indicate that roads most

negatively impact certain groups of species, including species that are attracted to or do not avoid roads and are unable to avoid individual cars (for example, amphibians) and species with large movement ranges, low reproductive rates, and low natural densities (for example, large carnivores). We can therefore expect that mountain lions would be strongly negatively affected by the presence of Highway 68 and their movement restricted in this area, limited to a narrow 200 ft undercrossing at El Toro Creek. Highway 68 poses a significant limitation to movement of wildlife, making the crossing at El Toro Creek important for wildlife movement. A comment stated that the applicant should install additional crossings under Highway 68. This fails to recognize that most of the length of the project across Highway 68 from the project site consists of an existing residential neighborhood with fenced yards which limits wildlife movement. To the west of the developed area is where the Fort Ord National Monument opens up onto Highway 68. This is also the location of the El Toro Creek bridge which functions as a wildlife corridor.

Although further development is proposed on the western portion of the project site where the El Toro Creek undercrossing of Highway 68 is located, implementation of Mitigation Measure 3.3-8 will reduce potential impacts to this undercrossing area to a less than significant level. Mitigation Measure 3.3-8 requires the applicant to revise the proposed Project site plan in the vicinity of El Toro Creek to remove or relocate development away from the riparian corridor to allow sufficient wildlife movements. In particular, that measure prohibits any new development from being located within 200 feet of the riparian edge or the Highway 68 undercrossing. In addition, fencing in the vicinity of the Highway 68 corridor will be designed to allow for wildlife movement and the open space areas on both sides of the undercrossing will be preserved in perpetuity so that species moving north-south through the project site have an intact area in which to reach this undercrossing. The site plan for Alternative 5 in the RDEIR (Fig. 4.3b-Alternative 5 Site Plan West) provides an example of a development that comports with the requirements of this measure. This alternative demonstrates a corridor ranging from 900 to 2,000 feet wide. With implementation of Mitigation Measure 3.3-8 impacts to wildlife corridors will be reduced to a less than significant level.

4. Inclusion of latest available data. The RDEIR used the most recent data available at the time of document preparation. Additional information has been provided in the BSLT comment letter and is acknowledged. The additional information continues to establish that the creek area under Highway 68 bridge is used by wildlife and this fact was acknowledged in the RDEIR. The additional data does not provide substantial new information that has not been considered in the RDEIR nor does it change how mitigation measures are considered. The additional data is acknowledged as part of the record.

5. Impact of roads on wildlife corridors. The roads within the project will be for local traffic and speeds will be much lower than nearby roads such as Highway 68. Installation of the interior roads is not expected to result in fuel modification for wildfire mitigation because most of the site is grassland the supports cattle grazing, and the open space parcels (600 acres) will continue to support cattle grazing. Mitigation Measure 3.3.-2a(3) requires the installation of undercrossings for small wildlife at locations along the access road to reduce the potential for road kill. Other fencing within the project will be permeable to larger wildlife (with the exception of a few areas where low barriers will exclude CTS from certain lots in proximity to Pond 18). The roads within the development are narrow private roads that are not through roads, minimizing the potential for conflicts between vehicles and animals. The Beier study referenced in the Big Sur Land Trust Comments identified the impacts of roadways that were described as freeways and roadways with a width of 50 meters (over 150 feet). The high incidence of wildlife mortality on these roads is understandable given the size of the roads, the speed and volume of traffic which these roads will support. As noted above, the proposed project is completely different.

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6. Portola Drive overpass. The Portola Overpass can be used by wildlife, especially at night. No data have been collected on its use by wildlife; however, it is not prohibitive for wildlife to use this crossing of Highway 68. Existing roadway overpasses have been documented to be used by wildlife even though they may not be improved for ideal wildlife use (LSA 2003). The presumption that the Portola Overpass may be used by wildlife does not change the analysis that wildlife movement can exist at the project site.

7. Impacts of an existing house within corridor. It is a fact that a ranch house is an existing use at this location and this existing use has been ongoing. The studies by Diamond et al. (2010) occurred at the same time the house was occupied. The fact that it is occupied and has structures within 150 feet of the undercrossing while the studies were underway is not considered anecdotal.

8. Effectiveness of MM 3.3-8a. The buffer distance does not include the El Toro and Harper Creek itself and is meant to protect the riparian corridors for wildlife migration and provide an additional corridor between the riparian zone and any future development to allow ongoing wildlife movements. This area has been demonstrated to be used by wildlife. As noted in previous responses, 2 km is the width described for undeveloped lands and narrower corridors do not necessarily restrict animal movement for larger wildlife species. In addition, Mitigation Measure 3.3-8b requires the use of wildlife permeable fencing including lots 1-39 so that species moving north-south through the project site have an intact area in which to reach this undercrossing in perpetuity.

9. "Other comments" to be addressed. Please see above responses regarding citations, barriers to movement, Portola Drive, and corridor width. Regarding construction noise, construction noise is considered a temporary condition under CEQA.

10. Open Space Management Plan/MM3.3-8c. Mitigation Measure 3.3-8c describes the Open Space Management Plan and the actions that it will contain to be reviewed and approved by the Monterey County RMA-Planning Department. The Open Space will continue to be grazed and will have some public trails; however, no permanent development will be allowed that would prohibit or limit wildlife movement. The Open Space as shown on the plans for the project and various alternatives will be protected under an easement that will prohibit future development. Wildlife permeable fencing will be used in the Open Space areas to allow wildlife movement in the corridor (Mitigation Measure 3.3-8d). These measures are all designed to reduce impacts to wildlife movement to a less than significant level.

Highway 68 is already a heavily traveled route with over 20,000 cars per day using this regional corridor. The Project is estimated to increase daily trips at this location less than 7% and is not considered to be a significant increase in traffic affecting wildlife movement.

11. Additional mitigation and alternative suggestions. The RDEIR describes a range of project alternatives that have been evaluated in terms of their impact on the environment. Alternative 5 reduces density, increases open space, provides additional setbacks and reduces lots adjacent to the Highway 68 bridge where animals have been observed. Under Alternative 5, there will be no additional new units built in the area currently occupied by the existing ranch house and its out buildings. Culverts are engineered to accommodate stormwater flows based on post-project drainage conditions, and drainage facilities adjacent to SR 68 are the responsibility of Caltrans.

12. Cumulative impact on wildlife movement. See response to letter RD-14.