

Borderlands Conservation Hotspot

1. The Californias



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Beginning at the coast, fencing marks 46 miles of the 60-mile border between San Diego County and Mexico.

The coastal area of southern California and northern Baja California, Mexico (the Californias, for short) has it all: beaches, mountains, great weather, cultural diversity—and more miles of border fencing than anywhere else on the U.S.-Mexico border. Seventy-two percent of the California border is blocked by pedestrian fencing according to recent figures (USBP 2017). The densely populated and rapidly growing region also has extremely high biodiversity and hundreds of imperiled species (Stallcup et al 2015). With so many natural assets at stake, the region has become “a hotbed of binational cooperation,” says Jerre Ann Stallcup, a conservation ecologist who has worked for over 20 years in the California borderlands and worries about the effects of wall building on cross-border collaborations and conservation investments (Stallcup 2018).

The Californias’ Mediterranean climate accounts for its biodiversity—cool, moist winters and warm, dry summers and mixture of northern temperate and arid southern habitats. Coastal sage scrub, chaparral, and oak and conifer woodlands are common. Cottonwood and willow forests line freshwater streams, and vernal pools provide seasonal oases for rare species like endangered San Diego fairy shrimp (U.S. Fish and Wildlife Service [FWS] 2017a). Further inland, east of the Jacumba Mountains and Peninsular Ranges, much drier and hotter conditions favor creosote and saltbush scrub, sandy grasslands, dunes and other desert ecosystems.

The Californias sustain over 400 species of plants and animals classified as endangered, threatened or at risk, including the endangered California condor, Peninsular bighorn sheep and Quino checkerspot butterfly (Stallcup et al 2015). The region is part of the larger California Floristic Province identified in 1996 by the International Union for the Conservation of Nature (IUCN) as one of the world’s most biologically important and imperiled regions (Critical Ecosystem Partnership Fund 2018). At least 75 percent of the original habitat in the province has already been lost (California Academy of Sciences 2017).

Border-security infrastructure and activities—including buildings, roads, night lighting, round-the-clock patrols, vehicles and helicopter flights—pose a whole other set of threats to wildlife and conservation lands already under pressure.

UNDER PRESSURE

The growth of the San Diego and Tijuana metropolitan areas—home to more than four million people—drives commercial, residential and transportation development and increasing off-road vehicle activity, pollution, habitat loss and wildfires in the Californias. In the last decade, fires destroyed thousands of acres of rare Tecate cypress (Stallcup et al 2015). Vernal pools are down to 10 percent of their historic extent (California Department of Fish and Game 1998), native grasslands to a mere 1 percent (California Native Grasslands Association 2018).

Urbanization poses the largest single threat to the endangered Peninsular bighorn sheep, with motor vehicles and poisonous ornamental plants introduced by homeowners and developers causing an equal number of deaths (Bighorn Institute 2018). Along the border, Interstate 8 in California and Mexican Highway 2 in Baja California fragment the landscape and encourage sprawl. Tijuana and Playas de Rosarito are spreading south along the coast and east toward Tecate, Ensenada is heading north.

Conservation lands

The U.S. side of the border has many protected federal and state lands (Figure 2a). Several small reserves near the coast are surrounded by human development, including the Tijuana River National Estuarine Research Reserve, Tijuana Slough National Wildlife Refuge and San Diego Bay National Wildlife Refuge. Inland reserves—most of which are much larger—include Cuyamaca Rancho and Anza-Borrego Desert state parks, Rancho Jamul and Sycuan Peak ecological reserves, and the federally designated Otay Mountain, Carrizo Gorge, Jacumba, Pine Creek and Hauser wilderness areas. These coastal and inland reserves total more than 1,000 square miles. Additional multi-use public lands offer varying levels of protection for habitat and wildlife corridors among more strictly protected lands.



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Where not negated by Real-ID-Act waivers, U.S. critical habitat designation offers another layer of protection for endangered and threatened species like the coastal California gnatcatcher, least Bell's vireo, western snowy plover, Quino checkerspot butterfly, Arroyo toad, San Diego fairy shrimp and Peninsular bighorn sheep.

The Mexican side of the border has two protected areas (Figure 2b). The 19-square-mile federally owned Parque

WALLS, WAIVERS AND ENVIRONMENTAL DESTRUCTION

In 2009, the Department of Homeland Security (DHS) invoked the Real ID ACT of 2005, which allows the agency to waive “all legal requirements... necessary to ensure expeditious construction of the barriers and roads,” and completed 14 miles of pedestrian fencing at the westernmost edge of the San Diego-Tijuana border (State of California v. United States 2017).



Previous page: Laborers construct a section of border wall. Above: To create this earthen berm that accommodates Border Patrol traffic, DHS waived environmental requirements and filled in Smuggler's Gulch, an ecologically significant canyon.

The building project included filling Smuggler's Gulch—an ecologically important canyon—with over 2 million cubic yards of dirt, creating a 145-foot-high berm topped by a road to allow border patrol vehicles access along both sides of a high wall (At The Edges 2018). The California Coastal Commission opposed this development, concluding that it would have significant, long-term adverse effects on the Tijuana River Estuarine Research Reserve, Border Field State Park and endangered species (California Coastal Commission 2003). Nevertheless, the project proceeded, resulting in habitat loss and increased erosion and water surges carrying harmful sediment that covers habitat for endangered Ridgway's rail and other species in the Tijuana Estuary (State of California v. United States 2017, Innes 2016).

DHS also used Real-ID-Act authority to waive the Wilderness Act and other laws to build a 3.6-mile stretch of wall and a five-mile patrol road across the southern boundary of the 30-square-mile Otay Mountain Wilderness Area (Innes 2016), subverting the congressional intent of wilderness designation and irreversibly damaging protected lands and wildlife. This wilderness area provides habitat for 20 sensitive plant and animal species, including the endangered Quino checkerspot butterfly (Bureau of Land Management [BLM] 2018), the largest remaining population of Tecate cypress—listed as endangered by the International Union for the Conservation of Nature (IUNC 2018), and the only known population of rare Mexican flannel bush (U. S. Congress 1999).

Prior to the waiver, a DHS draft environmental impact statement found the project would have long-term, adverse impacts on the plant, animal and hydrological resources of the area (DHS et al 2007). With laws nullified by the waiver, heavy equipment rolled in to drill and blast away steep slopes to clear 500,000 cubic yards of earth and rock (Torline and Gruszecki 2010). The impacts included extensive erosion, habitat fragmentation, felling of Tecate cypress trees and loss of wilderness values like solitude (Millis 2018).

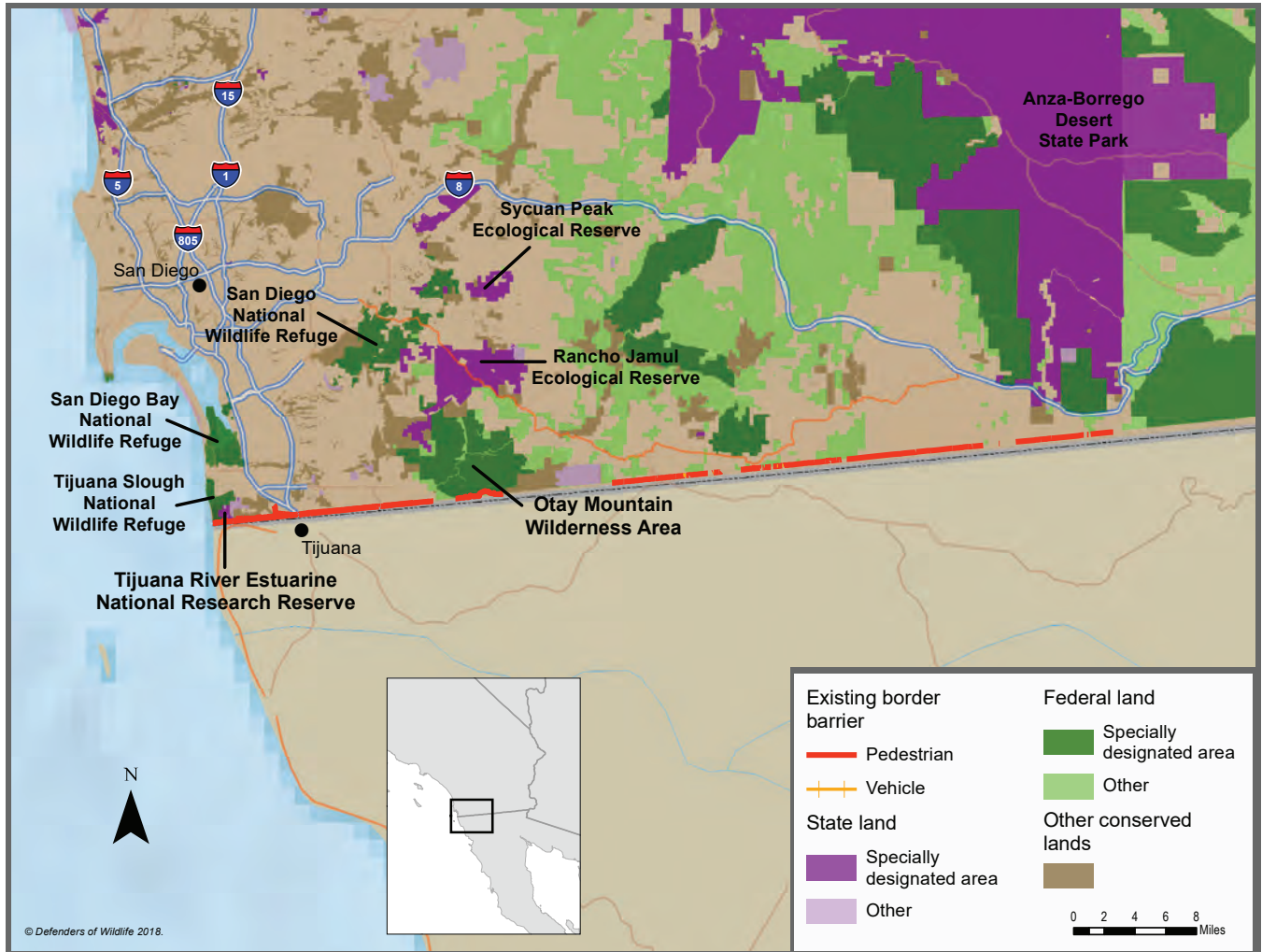


Figure 2a. Protected areas in the California from the Tijuana Estuary west to Anza Borrego State Park

Nacional Constitución de 1857, 45 miles south of the border, protects higher elevation coniferous forest and shrubland, shallow freshwater lakes, ponds and meadows (Comisión Nacional de Áreas Naturales Protegidas [CONANP] 2006). The mountainous 282-square-mile federally owned Parque Nacional Sierra de San Pedro Mártir, 127 miles from the border, protects high-elevation coniferous forests and, in the lowlands, chaparral and desert shrub. Both parks support golden eagles, mountain lions, bobcats, ringtails, mule deer and Peninsular bighorn sheep (CONANP 2006, 2007). San Pedro Mártir is also a California condor reintroduction site, part of a binational effort to restore these birds absent from Mexico since 1937 (University of California Institute for Mexico and the United States [UCMEXUS] 2003).

Collaborative conservation

To protect conservation lands, wildlife and other natural resources, nonprofits, institutions and government agencies

in California and Mexico regularly collaborate. Notable examples are summarized below.

Identifying conservation priorities

South Coast Missing Linkages Project. In 2002, conservation and research organizations working in the South Coast Ecoregion partnered to identify the most important remaining habitat linkages between protected areas (Penrod et al 2006). Their efforts have protected key U.S. parcels from development. Group members are also working with transportation agencies to include wildlife overpasses and underpasses on some of the region’s busiest highways. Partners include more than 20 U.S. and Mexican agencies and organizations, including U.S. Forest Service, National Park Service, BLM, California State Parks, Conservation Biology Institute, South Coast Wildlands, The Nature Conservancy, Conabio, Pronatura and the Universidad Autonoma de Baja California.

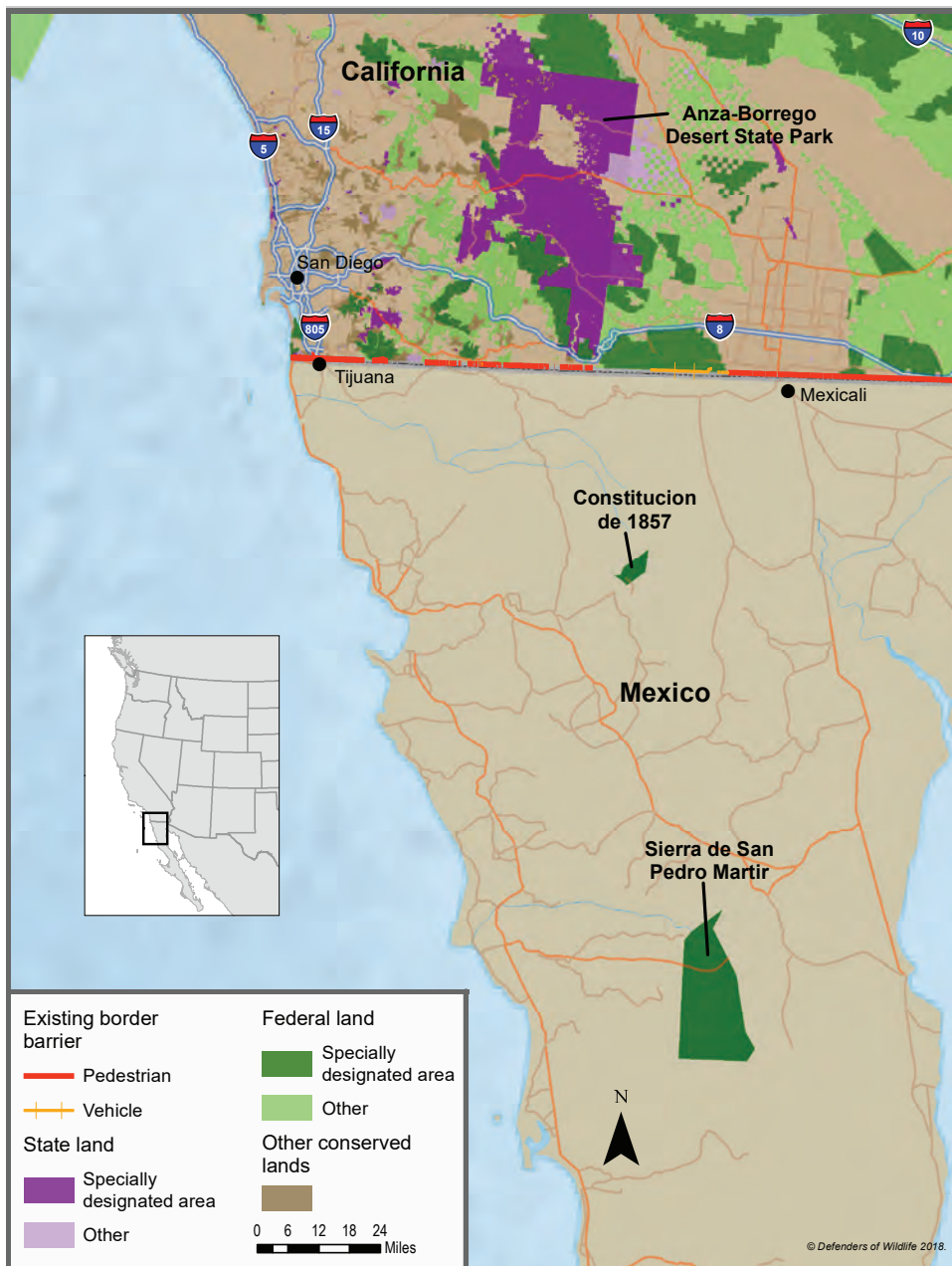


Figure 2b. Protected areas in the Californias from Anza Borrego State Park south to Sierra de San Pedro Mártir

Las Californias Binational Conservation Initiative

(LCBCI). After the South Coast Missing Linkages Project brought attention to the interdependence of borderlands species and highlighted the lack of protected areas on the Mexican side, LCBCI formed to identify essential areas for conservation. Members include the Conservation Biology Institute, The Nature Conservancy, Terra Peninsular, Pronatura, BLM, FWS, California Department of Fish and Wildlife, CONANP and Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT).

LCBCI assessed habitat losses in the Californias from 2004 to 2014 and documented some staggering ones in a 2015 report. Within the study area, valley grassland had decreased 48 percent in Baja California and 36 percent in California (Stallcup et al 2015). Development or border wall had closed off three of the remaining wildlife linkages between U.S. and Mexican refuges identified by LCBCI in a 2004 report (Stallcup 2018). LCBCI is now calling for agencies and nongovernmental groups in the two countries to protect the only remaining linkage, which runs down the Sierra Juárez mountains to Parque Constitución de 1857. (Stallcup et al 2015). This linkage would maintain connections between U.S. and Mexican populations of mountain lions, Peninsular bighorn sheep, California condors and golden eagles.

The rapid rate of habitat loss documented in LCBCI's 2015 report underscores an urgent need to create sister reserves in Baja California to safeguard a continuous swath of habitat north and south of the border.

This will require a substantial

increase in funding and political will in Mexico and close collaboration among organizations and agencies on both sides of the border.

Cooperating on conservation planning

Natural Community Conservation Planning (NCCP). California's Natural Community Conservation Planning Act provides mechanisms for decreasing conflict between development and conservation. The NCCP establishes a

legal framework that California municipalities have used to develop species conservation plans approved by FWS and the California Department of Fish and Wildlife.

With multiple southern California species facing extinction because of habitat loss, municipalities have created conservation plans that nest within the state's NCCP framework. For example, the **San Diego Multiple Species Conservation Program** (MSCP) covers the southwest portion of San Diego County. In this area that encompasses 900 square miles and borders Mexico, MCSP is preserving 171,920 acres (City of San Diego 2018) to ensure long-term survival of imperiled species while allowing development in other areas. Jurisdictional subareas, including unincorporated portions of San Diego County, the cities of San Diego and Chula Vista, are implementing the plan. The MSCP area abuts other NCCP plans within San Diego County and within Orange and Riverside counties to the north. But to the south in Mexico, no comparable regional planning program exists.

Development of the MSCP plan required six years of negotiation between public and private partners across the region. As of 2016, San Diego County has protected 75,450 acres of high value habitat in its unincorporated area (San Diego County 2018), invested \$35.5 million in land protection and leveraged another \$34 million (San Diego County 2017). The city of San Diego, in addition to its own subarea plan, developed a complementary **Vernal Pool Habitat Conservation Plan** to improve and streamline the environmental permitting process and minimize impacts to vernal pool species, including Otay Mesa mint, California Orcutt grass and San Diego fairy shrimp (City of San Diego 2017).

Sonoran Joint Venture. An FWS-supported binational group of more than 50 agencies, nonprofits and universities, the Sonoran Joint Venture leverages local, state and federal funds to carry out bird conservation projects in the U.S. Southwest and western Mexico, including southern California and Baja California (Sonoran Joint Venture 2018a). One 2016 grantee, the Southern Sierra Research Station, hosted workshops to train Mexican biologists to assess and monitor Mexican bird populations in trouble (Sonoran Joint Venture 2018b).

Protecting cross-border species

California condors. The recovery of the California condor—the largest land bird in North America—requires a widespread population in their historical range in California and Baja



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Full recovery of the California Condor hinges on binational cooperation.

California (FWS 2016a). In 1987, FWS and the San Diego Zoo pioneered a program to raise condors for release in the wild after loss of habitat and food sources, shooting and poisoning from lead and other chemicals had reduced the population to a mere 27 individuals (California Department of Fish and Wildlife 2018). Today nearly 250 condors fly free in the United States (FWS 2016b). Another 36 live in the wild in Baja California, centered around the Mexican release site in Parque Nacional Sierra de San Pedro Mártir, and sometimes venture into the United States (Porras 2018).

Mexicans Juan Vargas and Catalina Porras lead the team that raises condors for release at Sierra San Pedro de Mártir. When the program started in 2002, Vargas and Porras lived in a tent at the remote reintroduction site to acclimate and monitor the birds. Today, the juvenile condors they helped reintroduce are successfully reproducing adults. “We believe that in the future the flock flying free in California and the ones flying here in Mexico will merge,” says Porras.

Currently a memorandum of understanding between the United States and Mexico allows the transfer of condors and their eggs across the international border for conservation. Work is coordinated through the binational California Condor Recovery Team, with a major role played by the San Diego Zoo. “Our Mexican partners are wonderful,” says Ignacio Vilchis, the zoo’s associate director of recovery ecology. “We’ve worked together to establish a self-sustaining condor reintroduction program at Sierra San Pedro de Mártir” (Vilchis 2018). That goal is on the horizon: Offspring

from two breeding pairs at Mexico City's Chapultepec Zoo were recently released at the Sierra de San Pedro Mártir site—a milestone for the Mexican program and binational condor recovery.

Peninsular desert bighorn sheep. Once widespread in California and Baja California, in its current range (Figure 3) the desert-adapted Peninsular bighorn sheep now numbers fewer than 1,000 in Southern California, 2,000 to 2,500 in Mexico (Bighorn Institute 2018). Critical habitat designated by FWS for the species extends south to the border, and females from the U.S. Jacumba ewe group cross into Mexico to lamb and find summer water (Colby and Botta 2015). “There’s a break in the border fence because there’s very rough terrain in that area,” says researcher Asako Navarro. “We are seeing not only movement back and forth from the border, but use of the habitat by the peninsular bighorn sheep” (Binkowski 2015). Maintaining such connectivity between the U.S. and Mexican sheep is an important goal in the FWS

“The wall undermines a decade of massive financial investment in southern California conservation lands and makes it harder to ensure the future of species like the endangered Peninsular bighorn sheep.”

—*Jerre Ann Stallcup, ecologist*

recovery plan, and the long-term health of the population will depend on cooperation between U.S. and Mexican agencies.

Light-footed Ridgway’s rail. Loss of coastal wetlands to development in southern California and northern Baja California pushed Ridgway’s rail (formerly the light-footed clapper rail) to the edge of extinction. The Tijuana Estuary downhill from Smuggler’s Gulch supports the second-largest U.S. population of 70 to 120 nesting pairs in any given year, while a larger population exists in Mexico at Bahía San



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Parque Nacional Sierra San Pedro Mártir in Baja California is known for its pine trees, rock formations and recently reintroduced California condors.



Figure 3. Peninsular bighorn sheep range

Quintín south of Ensenada. A U.S. captive-breeding program started in 1998 is raising rams to augment the wild population, but fragmented U.S. populations have lost genetic diversity. One solution under consideration to introduce new genes is collecting eggs from the San Quintín population to rear in the United States. “The best conservation strategy for the bird’s long-term survival is strong binational cooperation,” says Eduardo Palacios, shore-bird specialist with Centro de Investigación Científica y de Educación Superior de Ensenada (2018). “We need genetic exchange between the two countries so populations stay healthy.”

Quino checkerspot butterfly.

The small orange-and-white Quino checkerspot once flitted throughout much of southern California and Baja California, but populations are now down by more than 95 percent (FWS 2003). FWS listed the Quino checkerspot as endangered and designated critical habitat, which extends to the U.S. border. The FWS recovery plan notes that survival of the U.S. population near the border may depend on recruitment from source populations in Baja California, notably one on Jesús Maria Mesa, next to an unwalled section of the border.

The looming threat of the wall

In addition to normal enforcement operations, the California border is enduring a flurry of activity as DHS’s designated border wall testing site. Eight wall prototypes completed in late 2017 now stand in Otay Mesa, south of San Diego. According to Reuters news reports, DHS also plans 26 miles of new or replacement fencing in the Californias (Ainsley 2009).

Blocked wildlife movement. Completing the wall across the California-Mexico border would dash hopes for protecting vital habitat connections between southern California and northern Baja. The finished wall would undermine conservation efforts even for common species like the mountain lion. Endangered U.S. Peninsular bighorn sheep would be blocked from lambing habitat and summer water sources in Mexico (California Department of Fish and Wildlife 2015), and genetic connections between U.S. and Mexican populations demonstrated by recent research would be lost (Flesch et al 2010). Because the

Quino checkerspot butterfly generally avoids flying over objects taller than seven feet (USFWS 2003), a 30-foot wall could genetically isolate the small U.S. border population from the larger source population on Jesús Maria Mesa, threatening its long-term survival (Stallcup 2004).

Hurdle to binational conservation. The wall and associated security complicate binational collaborations. Jeff Crooks, a scientist with the Tijuana River National Estuarine Research Reserve, works closely with Mexican partners to clean up contaminated water flowing into the Tijuana Estuary, where it forces beaches to close and buries habitat for Ridgway's rails with sediment. "My job is to get U.S. and Mexican scientists to meet," he says, "but this is really difficult when it can take hours to cross the border." Long-time area conservationist Jerre Anne Stallcup has additional concerns: "Further extending the wall, would undermine the long history of binational collaboration and investment of public funds that support conservation and provide border communities clean air and water" (Stallcup 2018).

Direct harm to biological resources. "The fence and associated infrastructure are changing the topography and altering ecosystem processes and natural water flow in the Tijuana watershed. Stallcup says (Stallcup 2018). In a complaint filed with the federal government in 2017, the state of California cites documented impacts from the existing walls: "Construction of the wall resulted in the destruction of sensitive upland and wetland habitats, the taking of endangered plant and animal species, the spread of invasive plant species, and the increase in sedimentation within Border Field State Park and the Tijuana Reserve." The state claimed that additional construction proposed by the current federal administration "will negatively impact sensitive biological habitats near the border as well as endangered and/or specially listed plant and animal species (State of California v. United States 2017).

Diversion of resources. As LCBCI documented in its 2015 report, time is running out to preserve the last remnants of habitats in the coastal zone and to keep the last major wildlife corridor between California and Baja intact. Money that could address conservation challenges may instead build a wall that will add to the challenges. Moreover, given current political priorities in the United States, the

"Our tax dollars should be invested in supporting our ports of entry that create jobs and further generate economic benefits. We should not waste funding on an unnecessary wall that would cost our region jobs and revenue, or damage our environment."

—*Georgette Gomez, San Diego councilwoman*

small amount of federal money provided for conservation in past years is likely to shrink even more—U.S. support for condor reintroduction in Mexico has already been cut.

Undercutting conservation investments. The wall undermines a decade of massive financial investment in southern California conservation lands and makes it harder to ensure the future of species like the endangered Peninsular bighorn sheep (Stallcup 2018). When Smuggler's Gulch was filled in 2009, the executive director of the California Coastal Commission, Peter Douglas, said, "Not only is it a wall of shame, but to override the protections after the state spent tens of millions of dollars to restore the estuary and to just come in and blast the place... it's just shameful" (Reese 2009).

Impact on trade and tourism. Border walls can put a substantial dent in income from ecotourism. As San Diego councilwoman Georgette Gomez wrote in an editorial in the *San Diego Union Tribune*, "The wall will also negatively affect our city's trade and tourism revenue. Our tax dollars should be invested in supporting our ports of entry that create jobs and further generate economic benefits. We should not waste funding on an unnecessary wall that would cost our region jobs and revenue, or damage our environment." Recognizing this the San Diego City Council passed a resolution in September 2017 opposing further wall construction (Garrick 2017).

