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April 11, 2018

VIA EMAIL AND U.S. MAIL

Ashley Smith
Planning and Development Services
County of San Diego
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Re: Newland Sierra (Log No. PDS2015-ER-15-08-001; SCH No. 2015021036, Project Numbers: PDS2015-GPA-15-001, PDS2015-SP-15-001, PDS2015-REZ-15-001, PDS2015-TM-5597, PDSXXXX-HLP-XXX) – Transmittal of Report by Megan Jennings, Ph. D., re Biological Resource Planning with Respect to the Newland Sierra Project

Dear Ms. Smith:

As you know, we represent Golden Door Properties, LLC ("Golden Door"), a world-class resort and agricultural operation in rural Twin Oaks Valley. The Golden Door has restored farming and beekeeping on its property, including the replanting of many new trees on the property—sharing its bounty at a community Farm Stand and through retail operations. The Golden Door has raised many concerns with the County about the proposed Newland Sierra Project and the impacts of adding urban density the size of the City of Del Mar in our rural community.

We write today with particular respect to the Project's biological resources analysis. The Golden Door and expert biologist Megan Jennings, Ph. D., have previously raised concerns regarding the Project's impacts on wildlife connectivity and habitat fragmentation, and have provided comments to the County describing the draft environmental impact report's ("DEIR") flaws in analyzing these impacts. Attached is an additional report from Dr. Jennings supplementing prior comments. This report discusses the interrelation of wildfire risk and cumulative development projects to the proposed Project's biological impacts. In particular, her report discusses the need for corridor redundancy as part of sound biological planning.

Please consider this report as part of the record for the Newland Project. Thank you for your time and attention to our comments. Please do not hesitate to contact us should you have any questions or comments.

Best regards,

Andrew D. Yancey

Andrew D. Yancey
of LATHAM & WATKINS LLP

cc: Kathy Van Ness, Golden Door
County Board of Supervisors
County Planning Commission
Darin Neufeld, County Planning and Development Services
Mark Slovick, County Planning and Development Services
William W. Witt, Office of County Counsel
Claudia Silva, Office of County Counsel
Dan Silver, Endangered Habitats League
George Courser, Sierra Club
Duncan McFetridge, Cleveland National Forest Foundation
Stephanie Saathoff, Clay Co.
Denise Price, Clay Co.
Chris Garrett, Latham & Watkins

Attachment

Effects of Wildfire on Wildlife and Connectivity

Prepared by: Megan K. Jennings, Ph.D.

January 23, 2018

Introduction

In southern California, where human impacts from development are limiting habitat connectivity for wide-ranging vertebrate species, fire is a disturbance regime that may also fragment habitats, further impacting those species. Although fire is a natural process in the southwestern U.S., increasing human development near open spaces has led to unnatural fire regimes with increased fire starts and an increased potential for vegetation-type conversion as a result. In the biodiversity hotspot of southern California, many studies have focused on the effects of urbanization and landscape fragmentation on wildlife. However, there has been relatively little attention to how human-mediated landscape fragmentation may influence natural disturbance processes, like wildfire, and how these synergistic disturbances impact wildlife populations.

Both fire frequency and size are increasing in southern California and are correlated with increasing anthropogenic development and human population growth in the region (Syphard et al. 2007, 2009). These studies suggest that at high human population densities, fire is eliminated from the ecosystem when contiguous vegetation necessary to carry fire is broken up by asphalt, concrete, and buildings. However, at intermediate human densities, housing developments and roadways are a source of increased fire ignitions which then spread into wildlands (Syphard et al. 2007, 2009). Both scenarios (too little fire, too frequent fire) present potential threats for species and community dynamics in southern California as shifts in the natural fire regime, coupled with increasing habitat fragmentation, have the potential to impact wildlife populations, communities, and entire ecosystems. In the highly urbanized landscape of southern California, long-term impacts such as habitat fragmentation and loss and shifts in disturbance regimes like the natural fire cycles, have resulted in persistent landscape changes (Syphard et al. 2009).

This report focuses on the impacts to wildlife connectivity posed by the proposed Newland Sierra project in the context of wildfires and the need for corridor redundancy. The Newland Sierra project proposes to build more than 2,100 homes on the I-15 corridor in the unincorporated portion of San Diego County between Escondido and Temecula. The project would be located in the area proposed for the North County Multiple Species Conservation Program (NCMSCP) on a site that has been identified as pre-approved mitigation area (PAMA).

As described in my previous reports (Jennings 2017a, 2017b), this project poses risks to wildlife connectivity in the area and could compromise overall design objectives of the NCMSCP. The proposed Newland Sierra project will significantly affect high quality core habitat and wildlife movement for both more common and sensitive and protected species to a degree that is not mitigated by the project design. The proposed project will have long-term direct and indirect impacts on wildlife from roadways, increased human activity, edge effects, human activity, and increasing fire frequency on wildlife movement. Due to the risks of wildfire and the numerous cumulative projects proposed along the I-15 corridor in northern San Diego County and southern Riverside County, it is particularly important to account for corridor redundancy in considering the Newland Sierra project. Regional connectivity plans must provide corridor redundancy to serve the range of species that may need to move between patches of habitat (Pinto and Keitt

2009, McRae et al. 2012), and to buffer against landscape disturbances, such as wildfires (Mcrae et al. 2008, McRae et al. 2012, Cushman et al. 2013, Olson and Burnett 2013). The biological analysis in the project's draft environmental impact report lacked sufficient consideration of these issues.

Impacts of Wildfires and Shifting Fire Frequencies on Wildlife

Disturbances that occur at large spatial scales, such as Santa Ana wind-driven fires in southern California, like the recent Lilac Fire in San Diego County, are most likely to change landscape configuration, or pattern, which can lead to change in resource availability, environmental features, and corresponding responses in the structure of populations and communities, all key metrics to landscape integrity (Sousa 1984, Pickett and White 1985, Fraterrigo and Rusak 2008, Turner 2010). Large-scale landscape changes, particularly fragmentation (Gardner et al. 1993), have been shown to alter biotic interactions, and lead to a loss of connectivity evidenced by a decline in dispersal, reduced survival rates (Riley et al. 2003), and limited gene flow (Riley et al. 2006). In southern California, the two disturbances that overlap and interact, fire and human development, are the predominant drivers of the landscape. In this region, empirical evidence suggests a shift is underway in the disturbance regime (Keeley and Fotheringham 2003, Safford and Van de Water 2014).

Shifts in fire regime typically involve changes to fire intensity, size, frequency, type, seasonality, and severity (Flannigan et al. 2000). Fire-return intervals, the average time between two fire events, in the shrubland habitats like the areas where the Lilac Fire occurred and the Newland-Sierra development is proposed were historically 30 to 100 years. In similar areas of the County, fires are 33% more frequent now than pre-settlement, due in large part to increased development and roadways (Figure 1; Keeley et al. 1999, Safford and Van de Water 2014). This shifting disturbance regime with shortened intervals between fires interrupts the successional cycle, reduces plant diversity, and results in vegetation and habitat type change to non-native and grass dominated landscapes (Keeley 2005), reducing habitat suitability and connectivity for species dependent on intact shrubland landscape. Shifting weather patterns resulting from climate change may also contribute to the alteration of fire regimes in southern California. Climate models predict that temperatures will increase and humidity will decrease (Miller and Schlegel 2006). Under these conditions, Santa Ana winds, the hot, dry winds from the deserts in the east, may occur more often and later in the season when fuels loads are highest (Miller and Schlegel 2006, Guzman-Morales et al. 2016). The concurrent disturbances of expanding human development and a shifting climate may alter how fire structures the landscape. Extensive development, particularly in exurban areas, results in increases in human-caused ignitions and fires of large spatial extents (Syphard and Keeley 2015), as well as an overall increase in fire threat (Figure 2), which can have long-lasting impacts on the landscape and wildlife habitat.

Many wildlife species that occur in the Mediterranean-type ecosystems of southern California have adapted to wildfires. Wildlife exhibit differential responses to wildfires depending on the availability of refugia and species' mobility, which determine their susceptibility to impacts from the direct effects of the fire. Habitat and diet breadth, population size and growth rates, as well as landscape connectivity can affect post-fire colonization and overall resilience to these types of stochastic events. While some research efforts in southern California have taken advantage of the

natural experiment presented by San Diego's 2003 and 2007 wildfires to gather information about bird (Mendelsohn et al. 2008), small mammal (Brehme et al. 2011, Diffendorfer et al. 2012), large mammal (Schuette et al. 2014), and herpetofauna (Rochester et al. 2010) responses to wildfire, there is much to learn about individual- and population-level responses, in particular as it relates to increasing fire frequency. Linking the effects of shifting fire regimes on wildlife where frequent fire may result in vegetation type conversion from shrublands to grass-dominated habitats (Keeley 2005, Keeley and Brennan 2012) is a significant challenge. There is evidence of the effect of increasing fire frequency on some species, such as the iconic coastal sage scrub species, the threatened California gnatcatcher (*Polioptila californica californica*). Already challenged by habitat loss and fragmentation in the coastal regions of southern California, frequent fires have degraded habitat for the gnatcatcher (Winchell and Doherty 2014) as California sagebrush (*Artemesia californica*), laurel sumac (*Malosma laurina*), and white sage (*Salvia apiana*), key habitat elements for the bird, have been replaced by non-native annual grasses in areas that have experienced repeated fires. Habitat specialists and small species are not the only ones subject to the impacts of increasing fire frequency. Despite the fact that mountain lions (*Puma concolor*) are highly mobile and able to move away from fires, the species is potentially at risk from vegetation-type conversion to non-native annual grasslands (Jennings et al. 2016). Although this species may tolerate grasslands when moving between habitats (Zeller et al. 2014), habitat fragmentation between San Diego County and the Santa Ana Mountains to the north has limited gene flow and resulted in inbreeding for the southern California population (Ernest et al. 2014), a situation which further habitat degradation, particularly as a result of increasing fire frequency, could worsen.

Wildfire and Connectivity

Habitat connectivity is essential to climate-smart landscape strategies (Heller and Zavaleta 2009) and strengthens ecosystem resilience to additional stressors such as habitat fragmentation (Beier and Gregory 2012), and other disturbances, e.g., fire and disease (Noss 1991, Hilty et al. 2006). Across much of southern California, the state's Natural Community Conservation Planning (NCCP) program and the federal Habitat Conservation Plan (HCP) have been used to establish conservation networks to protect natural communities and prevent further habitat fragmentation (Ogden Environmental and Energy Services 1996, Riverside County 2003). Although the direct effects of anthropogenic landscape alteration, namely habitat loss and fragmentation, are paramount in this region (Soulé 1991, Crooks 2002, Beier et al. 2006), the indirect effects of intense human development such as changing patterns of natural disturbance regimes, *e.g.* wildfire, may present an equally large risk to landscape integrity. As human populations in southern California have grown dramatically over the last century, particularly in coastal areas, short fire-return intervals paired with habitat fragmentation, may have synergistic and long-term impacts on landscape connectivity that present a formidable conservation challenge. Given that these disturbances exert measurable impacts individually (Lindenmayer et al. 2008, Turner 2010), it is likely that the synergistic effects of shifting disturbance regimes and fragmentation present a serious threat to landscape connectivity (Turner 2010).

Given the importance of landscape connectivity to ensuring population viability and persistence, accurate assessments of physical and functional connectivity are critical. Dynamic landscape processes, like wildfires, may impede movement for many species in the short-term, but an altered fire regime may permanently alter landscape linkages. In particular, shifting disturbance

regimes, like the increase in fire frequency and size reported in southern California, may have synergistic impacts that erode landscape connectivity if efforts are not made to buffer the number or impacts of fire on landscape linkages. New approaches to identifying factors that impair physical and functional connectivity are needed to develop mitigation strategies to maintain landscape connectivity if urbanization is considered on fire-frequent landscapes, with a particular focus on the coastal areas that are most impacted by development, and foothills and valleys where the wildland-urban interface is most at risk for increases in fire frequencies and consequential type conversion.

Building resilience into these networks of conserved lands can be approached from two perspectives: 1) reducing ignitions in fire-prone areas, and 2) account for these altered disturbance dynamics in conservation planning efforts like the Draft NCMSCP. Robust measures to reduce ignitions should be employed. However, reducing ignitions alone is unlikely to protect San Diego County's open spaces from fire and must be paired with complementary approaches to provide for habitat and connectivity when fires do occur. This includes planning for redundancy in linkages connecting habitat patches (Pinto and Keitt 2009). Because a single path is unlikely to equally serve all individuals of a species, let alone all potential species that may need to move between patches of habitat, multiple corridors between landscape blocks are often necessary (Pinto and Keitt 2009, McRae et al. 2012). Furthermore, this redundancy can also buffer against uncertainty and dynamic processes, particularly disturbances, on the landscape (Mcrae et al. 2008, McRae et al. 2012, Cushman et al. 2013, Olson and Burnett 2013). As discussed in my previous comments on the Newland Sierra draft environmental impact report, the project's biological analysis is deficient in its consideration of corridor redundancy. Threats to wildlife connectivity from wildfire emphasize the need to consider corridor redundancy with respect to Newland Sierra and the NCMSCP.

Furthermore, the assessment of connectivity and redundancy to provide for wildlife movement under a variety of conditions must be conducted at a regional scale. For San Diego County, this means consideration of conservation planning efforts and acquisitions as well as development projects in Orange and Riverside Counties. In particular, the Santa Ana-Palomar landscape linkage that has been identified as a critical movement corridor for many species (South Coast Wildlands 2008), most notably the mountain lion (Vickers et al. 2015), spans both San Diego and Riverside Counties and could be affected by several development projects that could limit functional connectivity in northern San Diego County.

Together with the cumulative projects proposed in this region, Newland Sierra could restrict wildlife movement in northern San Diego County as well as any opportunities to build resilience into a regional connectivity plan by providing for corridor redundancy. The Merriam Mountains area is currently one of the few shrub-dominated open spaces in San Diego County that has not experienced overly frequent wildfires which lead to increased risk of vegetation-type conversion from shrublands to non-native annual grasslands (Figure 1). Preserving a relatively intact landscape, such as the Merriam Mountains, is critical to developing a functional preserve system for the NCMSCP. However, the proposed Newland-Sierra Project's new roadways, increased traffic, homes, and increased wildland-urban edge are all known sources of fire ignitions in southern California (Syphard and Keeley 2015) that will threaten to increase the fire frequency in this area, which is already at high risk of fire due to the site's vegetation and terrain features

(Figure 2), as well as the risk of vegetation-type conversion. These same project elements will also further restrict wildlife movement in an area where movement is already constrained. The synergistic effects of restricted movement and habitat degradation caused by increasing fire frequency could greatly reduce connectivity in this region and threaten the functionality of the proposed preserve network under the NCMSCP. Figure 1 illustrates that few linkages remain in San Diego County that are not challenged by crossing urban development or areas that have burned repeatedly and are at risk for weed incursion, habitat degradation, and vegetation-type conversion. When dynamic landscape processes are considered, effective planning for landscape connectivity will require consideration of all potential projects that may affect wildlife movement as well as the synergistic disturbances that also affect landscape connectivity. The NCMSCP provides an opportunity for this type of regional wildlife connectivity planning, but individual development proposals considered in isolation and without adequately accounting for regional corridor redundancy could threaten the overall effectiveness of the planning process.

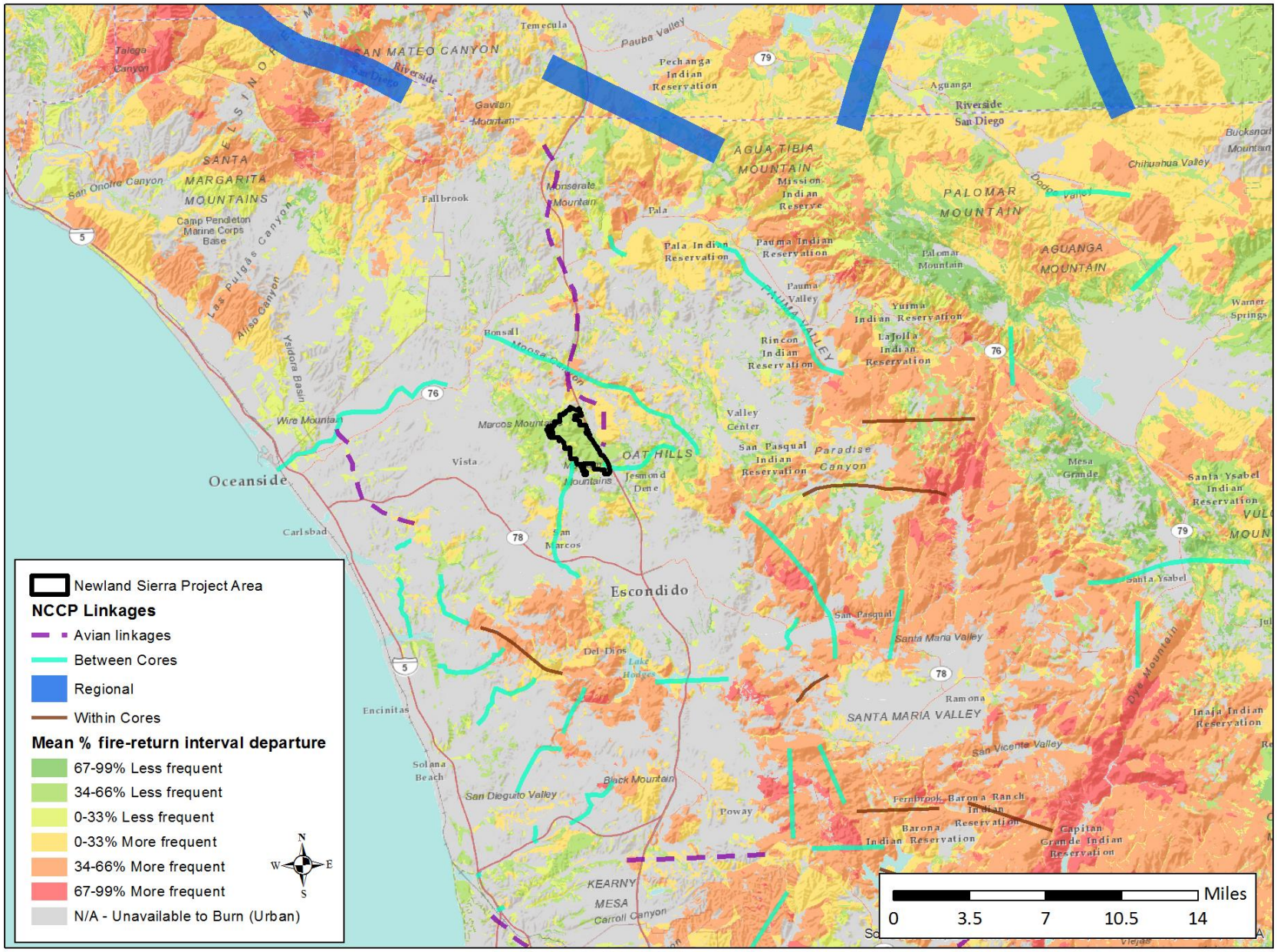

Figure 1. Map of fire-return interval departure (Safford and Van de Water 2014) for northern San Diego County and linkages identified in the Management Strategic Plan Connectivity documents for San Diego's NCCP areas.

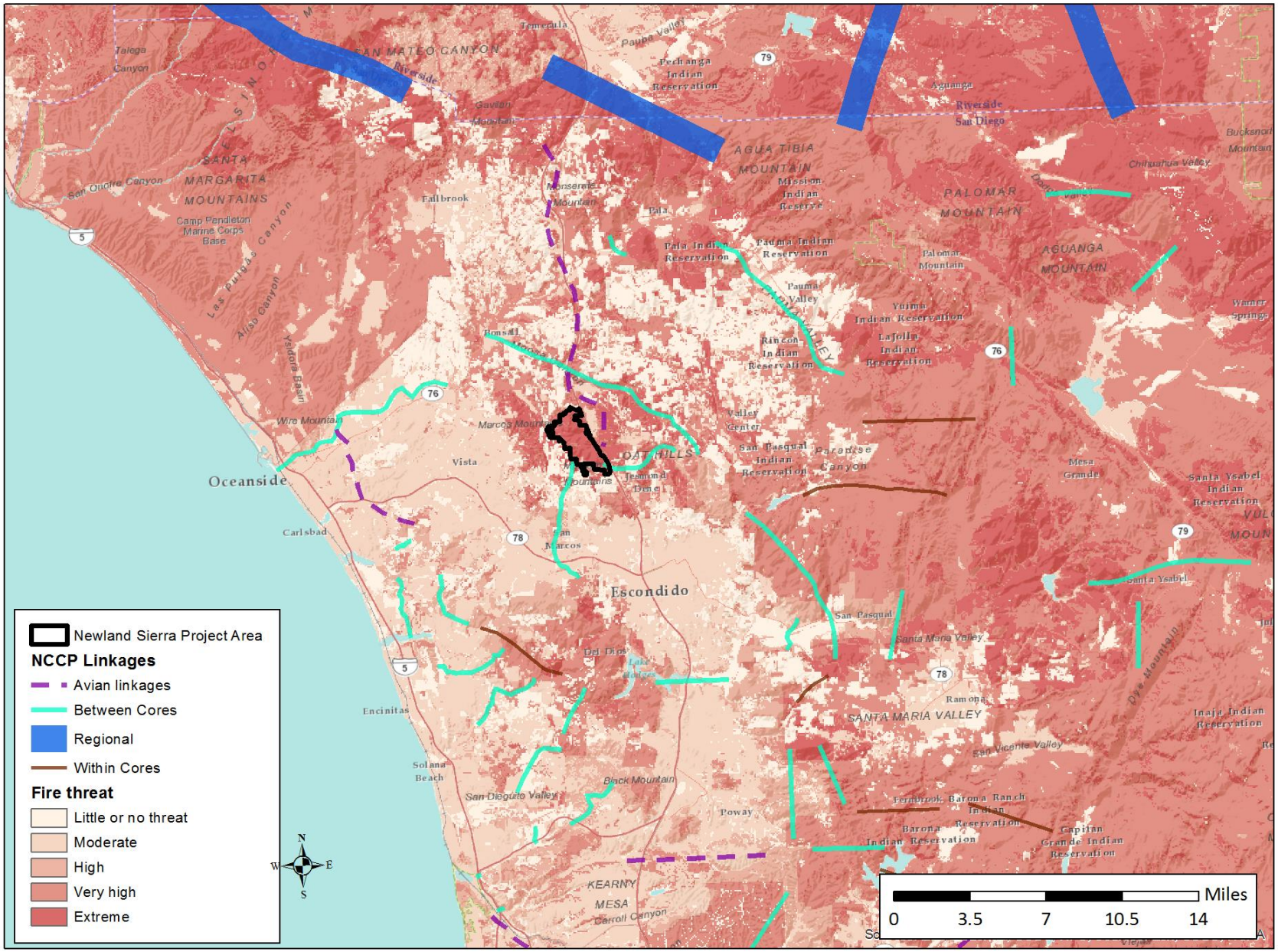

Figure 2. Map of fire threat for northern San Diego County as classified by California's Fire and Resource Assessment Program and linkages identified in the Management Strategic Plan Connectivity documents for San Diego's NCCP areas.

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