Possible Predation of a Western Burrowing Owl by Common Ravens

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Common Raven (*Corvus corax*) populations have increased in arid environments over the past several decades due to human development, including landfills, agriculture, and urban expansion (Camp et al. 1993, Webb et al. 2004). Since the 1960s, raven populations have increased by more than 1500% in the Mojave Desert, resulting in an increase in predation of several special-status species, such as the desert tortoise (*Gopherus agassizii*; Camp et al. 1993, Knight et al. 1993, Kristan and Boarman 2007, Webb et al. 2004). Similarly, raven populations in the San Joaquin Valley benefit from development in the form of irrigated agriculture, landfills, and highway infrastructure. Power poles and transmission lines along roads and rural highways provide ample nesting platforms for ravens, and roadways provide roadkill scavenging opportunities.

Ravens are intelligent and cunning predators, capable of taking a variety of prey, including mammals, birds, reptiles, amphibians, and eggs (Poulin et al. 2011). As with the desert tortoise in the Mojave Desert, ravens have the potential to increase predation pressure on rare, endangered, and special-status species in the San Joaquin Valley.

The Burrowing Owl (*Athene cunicularia*), a diurnal species, breeds and winters in grassland and locally within agricultural and semi-developed habitats in the San Joaquin Valley. The owl has declined in the Central Valley of California (which encompasses the San Joaquin Valley) due to habitat loss and is designated as a State Species of Special Concern (Gervais et al 2008) and a U.S. Bureau of Land Management "sensitive" species (California Department of Fish and Wildlife 2017). As a relatively small, ground-nesting species in open habitats, Burrowing Owls have potential to be detrimentally affected by raven predation (Henderson 2013). Here, I describe the possible predation of a Burrowing Owl by Common Ravens.

On 12 June 2017 at around 1630, while traveling northbound on State Route (SR) 41 in Kings County, California, approximately 11 km (7 mi) north of Kettleman City, I saw a group of ravens flying westward across the highway. The lead raven was carrying something large in its beak (Figure 1). The ravens appeared to be retreating from the easternmost bank of the Blakeley Canal that parallels the eastern shoulder of SR 41 and settling in a field on the west side of the highway near Omaha Avenue. I exited the highway and drove

along Omaha Avenue approximately 180 m (600 ft) where I saw the lead raven drop the large item along a small canal [Lat. 36.09372, Long. -119.91312; ele. 58 m (190 ft)]. I identified the item as a Burrowing Owl (Figure 2). The ravens remained nearby and were calling frequently. The owl appeared to be a fresh kill with the head missing and the intestines exposed.

Figure 1. Common Raven with large item in its beak, later determined to be a Burrowing Owl.

The canal systems of Kings County commonly support Burrowing Owls as year-round residents (pers. obs.) Many Burrowing Owl predators are found in the area, including American badger (*Taxidea taxus*), coyote (*Canis latrans*), and feral dogs and cats. It is possible that another predator took the owl, which was then opportunistically retrieved from the predator by the ravens. However it is also possible a raven or group of ravens were able to take an owl and peck the carcass to a point where the head was consumed before a single raven transported the owl elsewhere. Ravens and American Crows (*Corvus brachyrhynchos*) are known predators of Burrowing Owl eggs and fledglings (Assal et al. 2015, Henderson 2013, Hall and Greger 2014, Poulin et al. 2011) and raven predation is recognized as a threat to other special-status species (Liebezeit and George 2002, Coates and Delehanty 2004, Peebles et al. 2017).

The increased number of ravens in an area also may distract owls to a point where they may not notice other predators (i.e., coyotes) approaching which may result in an increased rate of take. Presence of ravens also may

disrupt the diurnal activity patterns of burrowing owls, which could reduce foraging time and success.

Elevated levels of Burrowing Owl predation by predator populations that are augmented by human food sources and habitat modification was not recognized as a threat in a recent conservation assessment in California (Gervais et al. 2008). Nonetheless, more research is recommended to determine the impacts of increased Common Raven populations on the Burrowing Owl and other special-status species in the San Joaquin Valley and elsewhere.

Figure 2. Dorsal (above) and ventral (below) views of the predated Burrowing Owl at the drop point.

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Burrowing Owl (*Athene cunicularia*). 26 February 2016. Yolo Co., California
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