

Badger Diets Becoming Influenced By Stress

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The American badger (*Taxidea taxus*) is of special concern within the state of California (California Fish & Wildlife, 2021) because we still do not fully understand this species, especially in the San Francisco Bay Area and the Central coast. They are shy animals and not well studied. American Badgers are known as prairie mammals and are opportunistic foragers that consume a wide range of vertebrates, especially mammals, as well as invertebrates and plant material (Sovada, Roaldson, Sergeant, 1999). However, their primary diet consists of Prairie Dogs (*Cynomys* sp.), Ground Squirrels (*Uroditellus* sp.), birds, bird eggs, and other ground dwelling animals (Sovada et al. 1999). For this reason, they are hard to study and have been known to scavenge on either roadkill or dead animals that come across their path (Sovada et al. 1999). They have also been documented on eating chicken eggs when they stumble upon farmlands that were once prairie landscapes. Interestingly, some farmers found badgers eating from dead cow carcasses in pasture fields (Sovada et al. 1999).

In California, American badgers not only have been found in nearly every ecosystem in the state but have also changed their fur colorations during the seasons such as darker fur color during the winter and lighter fur color in the spring and summer (California Fish & Wildlife, 2021). It is important for them to avoid roads and even croplands that occupy the terrain for agriculture because this will lead to more conflicts between badgers and people (Duquette et al. 2014). Badgers are prolific burrow excavators and have been known for excavating burrows that can be used by other burrowing animals such as the burrowing owl (Andersen et al. 2021). Badgers build burrows in three different seasons-Summer, Winter, and Natal (for the birth of pups) which makes it difficult for conservationists to properly study these mammals as they also move out of their burrows to create new ones elsewhere (Symes et al. 2017). Each seasonal burrow has its own features; winter burrows have vegetation and snow cover, natal burrows where pups are born can have better predator avoidance with better thermal protection, while the summer burrows have some thermal protection from predators (Symes et al. 2017). Although the entirety of this grassland carnivore's range is expansive across southern regions of Canada, the western and central United States, and northern Mexico, populations within the species' range may be isolated due to natural and anthropogenic barriers to long-range movements (Quinn et al. 2016). Badger occurrence has been

shown to decrease with increased habitat fragmentation and decreased habitat patch size; therefore, prairie may have been too limited for consistent us badgers (Duquette et al. 2014).

Loss of grassland habitat, primarily to agricultural practices, likely increases vulnerability of hens and their eggs to depredation by badgers because nests are concentrated in remaining fragmented grassland areas (Sovada et al. 1999). Food-habit studies of badgers have shown a wide diversity of prey species, which strongly indicates opportunistic foraging behavior (Sovada et al. 1999). This may lead to an indicator of the stress the badgers face within a highly populated state like California with 40 million residents. Since badgers travel up to 6 miles away from their dens either in search of a mate or food, they must face the challenge of crossing the highways or freeways that stand in front of their opportunities to survive (Sunga et al. 2016). Badgers are now pressured into less range due to road development and have kept the road mortality high (Sunga et al. 2016).

The conclusion is that we researchers are trying to find ways to lower mortality rates of the American Badger by figuring out the strategies needed for road mitigations (Sunga et al. 2016). Even though some badgers have been spotted using animal tunnels and some have learned to look both ways before crossing the highway or freeway roads like humans, there must be some management for developing safer crossings for these endangered animals. Without us, the badgers may not survive, and we will never be able to retrieve the data needed for studying these majestic mammals.