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Issues Facing Tortoise Translocation in an Urbanizing Area

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Copper Mountain College (CMC) established an 85-acre tortoise preserve in 2008 to serve as a translocation area (TA) for tortoises displaced from the adjacent 55 acres by campus expansion. Forty-eight monthly surveys from 2009-2012 along TA fencelines, and annual spring surveys from 2009-2013 throughout the TA, documented management concerns and generally bimodal variance in tortoise presence and activity. During monthly surveys, tortoises, scat and burrows were most detectable in spring and fall seasons. Tortoise detection showed weakly positive correlations (*Spearman's r*) with monthly precipitation and mean monthly temperature. Scat abundance differed significantly (*1-way ANOVA, p < 0.01*) between months and years. Subadult scat was most detectable in the same seasonal periods as adult scat. During the study period tortoise scat increased significantly along TA fences, except along the southern fence bordering Highway 62, indicating that road proximity may affect tortoise behavior. Management successes included no mortality of adult translocated tortoises, good compliance by construction personnel and vehicles, removal of invasive mustard species, and educational efforts. Persisting management issues have included some predation by ravens and canids, presence of *Mycoplasma*, ectoparasitic tick vectors, shell disease, recurrent litter, and storm or vehicle damage to fences. Introduction of two pet tortoises occurred despite informational signs, although no poaching of tortoises has been detected. More effective population monitoring using radiotelemetry, rigorous health testing, and durable identification markers could have been implemented with better funding. This translocation scenario is likely to be repeated when tortoises are displaced from other urban areas.