

Hoover, S.L. and M.L. Morrison. 2005. Behavior of Red-Tailed Hawks in a Wind Turbine Development. *Journal of Wildlife Management* 69:150-159.

Abstract: Birds flying within windfarms can be killed when they collide with wind turbines. Raptors, especially red-tailed hawks (*Buteo jamaicensis*), are more susceptible to collisions than other birds, which may be attributable to their specific foraging and flight behavior. To more fully understand the problem, and to reduce raptor mortality, it is necessary to acquire more information on habitat use and flight behavior by raptors inhabiting windfarms. Between June 1999 and June 2000, we watched raptors for 346 hours in the Altamont Pass Wind Resource Area, the largest windfarm in North America. We recorded flight behavior in relation to characteristics of the topography such as slope aspect, elevation, and inclination and in relation to various weather variables including wind speed and wind direction. We found that red-tailed hawk behavior and their use of slope aspect differed according to wind speed. Hawks perched more often in weak winds than in strong. Red-tailed hawks were more likely to soar during low wind conditions and kite during strong wind, particularly on hillsides that faced into the wind as opposed to hillsides shielded from the wind. This is likely a result of their use of deflection updrafts for lift during flight. During our study, when winds were strong and from the south-southwest, kiting behavior occurred on south-southwestern facing slopes with inclines of greater than 20% and peak elevations greater than adjacent slopes. Accordingly, mitigation measures to decrease red-tailed hawk fatalities should be directed specifically to these areas and others fitting this general model. Wind farm managers can power down turbines at the top of these hazardous slopes when they pose the greatest danger—when winds are strong and facing perpendicularly to the slope.