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WHEN SEABIRDS AND HIGHWAYS COLLIDE: WEDGE-TAILED SHEARWATER FALLOUT ALONG SOUTHEASTERN O'AHU (2011 - 2015)

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The Wedge-tailed Shearwater ('Ua'u kani, *Ardenna pacifica*) breeds on offshore islets along the windward coast of O'ahu. Fledging shearwaters are grounded due to light attraction followed by collisions with utility wires/poles and vehicles. To quantify the magnitude of this fallout, we repeatedly surveyed a 16-km stretch of the Kalaniana'ole highway during the fledging season (Nov.1 - Dec.21), and performed a mark-recapture study to assess survey biases due to carcass loss. We analyzed the influence of year and two covariates (date, percent of lunar disk illuminated), and found that shearwater fallout varied significantly from year to year, and in relation to the lunar cycle; yet, there was no significant date effect. The influence of the lunar cycle was further evidenced by the multi-modal distributions of fallout, with peaks during low moon periods. The mark-recapture study revealed that the carcasss loss rate varied as a function of the number of days since marking, from 24.1% (first day) to 0.0% (eight day). We synthesized the mark-recapture data using an exponential decay model, with an additional variable to account for the non-linear influence of time. The best-fit regression confirmed that the number of days since marking had a significant non-linear influence on the probability of resighting a carcass. Namely, newer and older carcasses were lost at higher and lower rates, respectively. Altogether, this study documented temporal patterns of carcass deposition and loss along a seaside highway in southeast O'ahu, and demonstrated that fallout varies from year to year and increases during bright moon nights.