

*Only instances in which nest failure is known with certainty or with reasonably descriptive evidence are reported here. We excluded some studies if the methods did not describe that nest failure was determined by cameras, video, necropsy, or direct human observation. Some examples of excluded studies for marbled murrelet: Marks and Naslund (1994) is sometimes cited as an example of nest failure caused by a sharp-shinned hawk (*Accipiter striatus*), but is not included here because a nest site was not found and thus the depredated adult was not positively nesting (adult could have been a prospecting nonbreeder). Another example: Silvergieter (2009) stated "four nests contained the predated remains of chicks" but it seems possible that chicks died in the nest and later were scavenged, and methods do not provide sufficient details to differentiate between these different outcomes. Not enough information is provided in the text to feel confident in the cause of failure in such cases. Similarly, in Nelson and Hammer (1995), predators with ? symbol are excluded here. Also, successful nests and nests that failed from unknown causes are excluded from this table, as are artificial nest studies. Importantly, there are many potential sources of bias in these studies and it should not be assumed that observations in this table are representative of population-wide causes of nest failure. A few obvious sources of bias include: (1) predation is difficult to document without remote cameras, and not all studies used cameras, (2) nest failure due to death of parent is typically only known when adults were radio tagged, and few studies have radio tagged both parents, (3) many nests are inaccessible to humans, biasing observations to human-accessible nests, (4) radio transmitters and cameras may influence parent or predator behavior and thus nest success, and (5) reports of chicks falling from limbs in forested environments are likely overreported relative to other causes of failure because fallen chicks are easier for humans to find (being on the ground) compared to nests high in the canopy.

**With the exception of the record of a chick falling from nest (Carter and Sealy 1987), these Redwood, CA, cases are of the same nest being monitored for 10 years.

†Excludes accounts of marbled murrelet eggs and chicks found on forest floor during logging operations.

Sources

¹Kissling unpublished data, Day et al. (2017), USFWS (2013)

²Burkett et al. (2009), Lawonn 2012, Lawonn et al. (2009, 2011, 2012), Corcoran et al. 2014, Knudson et al. (2014, 2015, 2016, 2017), Shearn-Boschsler et al. (2014)

³Kaler et al. (2008, 2009, 2010, 2011)

⁴Kissling and Lewis (2016)

⁵Binford et al. (1975), Singer et al. (1991), Peery et al. (2004)

⁶Carter and Sealy (1987)

⁷Golightly and Schneider (2011), Hebert and Golightly (2007)

⁸Kerns and Miller (1995)

⁹Barber (1941)

¹⁰Nelson and Hamer (1995), Nelson and Peck (1995), Nelson and Wilson (2002)

¹¹Hamer and Cummins (1991)

¹²Current study

¹³Silvergieter (2009)

¹⁴Barbaree et al. (2014)

¹⁵Naslund et al. (1995)

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