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Interspecific nest use by Loggerhead Shrike (*Lanius ludovicianus*)

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ABSTRACT—Nest reuse is a relatively uncommon practice among passerines, particularly among multiple species. In June 2016 we documented a Sage Thrasher (*Oreoscoptes montanus*) nest in the Upper Green River Basin, Wyoming, being reused by a Loggerhead Shrike (*Lanius ludovicianus*) pair within the same season. The shrikes made structural changes to the nest, including removing nearly all sticks supporting the nest's exterior. The repurposing of an open-cup nest by a Loggerhead Shrike within the same breeding season has never been documented, and interspecific nest reuse by passerines in general is rare. The pervasiveness of this behavior, however, is poorly understood because instances are likely underreported. Received 2 March 2017. Accepted 30 April 2017.

Key words: Loggerhead Shrike, nest deconstruction, nest reuse, Sage Thrasher, sagebrush steppe, Wyoming.

Uso interespecífico de nido por *Lanius ludovicianus*

RESUMEN (Spanish)—El reuso de nidos es una práctica relativamente poco común entre paserinas, particularmente entre múltiples especies. En junio de 2016, documentamos un nido de *Oreoscoptes montanus* en la cuenca alta del río Green, en Wyoming, que fue reutilizado por una pareja de *Lanius ludovicianus* en la misma temporada. Los *Lanius* hicieron cambios en la estructura del nido, incluyendo la remoción de casi todas las varitas que le dan soporte al exterior del nido. El reuso de un nido de copa abierta por *Lanius ludovicianus* en la misma temporada reproductiva no había sido documentado anteriormente y el reuso de nidos por paserinas en general es raro. La prevalencia de este comportamiento, sin embargo, es poco conocida, posiblemente debido a que estos incidentes son escasamente reportados.

Palabras clave: Deconstrucción del nido, estepa con matorral de *Artemisia*, *Lanius ludovicianus*, *Oreoscoptes montanus*, reuso del nido, Wyoming.

habitat can influence future predation risk and exposure to extreme weather events (Alatalo 1981, Martin 1993, Greño et al. 2008), and poor nest site selection can reduce reproductive success (Martin and Roper 1988, Jones 2001, Chalfoun and Martin 2007). Because nest placement is important to reproductive success, some species reuse the same nest site year after year, taking advantage of a high quality nesting site from a successful breeding attempt (Wysocki 2004) and/or minimizing future nest-building efforts (Mountjoy and Robertson 1988, Gauthier et al. 1994).

Nest reuse is particularly common among burrowing (Lutz and Plumpton 1999), cliff-nesting (Gauthier et al. 1994, Martinsen and Schall 2014), and cavity-nesting (Short 1979, Wiebe et al. 2007) birds that rely on existing infrastructure for structural support, increasing their durability. Although nest reuse does occur in some open-cup nesting passerines (Curson et al. 1996, Cavitt et al. 1999, Wysocki 2004, Styrsky 2005, Redmond et al. 2007, Ellison 2008), it is relatively uncommon. The lack of open-cup nest reuse has been attributed to a variety of factors, including prevalence of ectoparasites in old nest linings (Short 1979, Møller and Erritzoe 1996, Tomás et al. 2007), increased predation risk (Styrsky 2005, Boves et al. 2013), and ample availability of alternate nesting sites (Redmond et al. 2007). Open-cup nests are also often relatively flimsy when compared with nests made by the aforementioned species (Slagsvold 1989) and therefore not likely to maintain their structural integrity across multiple seasons.

Nest reuse is most common in birds that repurpose nests originally built by conspecifics. Some birds, however, reuse nests built by heterospecifics, and others will take over the nest of another individual in the middle of the nesting cycle in an act known as nest usurpation. Interspecific nest usurpation among songbirds is most common among cavity nesters (Wiebe et al. 2007), large stick-nest builders (Zhou et al. 2009), and species with enclosed nest cups (Lindell

Selecting an appropriate nest site is a critical first step during breeding for many taxa (Martin 1988). Nest site location and surrounding micro-

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1996). The rarity of nest usurpation among species that nest in open cups may be partially attributable to increased predation rates for open-cup nests (Møller 1989, Lindell 1996); unprotected nests have a higher likelihood of predation and may be less appealing to potential nest usurpers. Open-cup nests are also among the least costly nests to construct, minimizing the benefits of nest reuse (Mainwaring and Hartley 2013).

While most nest reuse behaviors have been only sporadically observed among some passerine species that nest in open cups, interspecific nest reuse within the same season is especially uncommon. Here we document one observation of interspecific nest reuse during which a Loggerhead Shrike (*Lanius ludovicianus*) reused a nest built by a Sage Thrasher (*Oreoscoptes montanus*) earlier in the breeding season.

Observations

On 13 May 2016, we located a big sagebrush (*Artemisia tridentata*) shrub (Fig. 1a) containing a Sage Thrasher nest (Fig. 1b) along a dry creek bed in the Upper Green River Basin, Sublette County, Wyoming (47°28'32.3934"E, -109°41'43.882"N). The drainage was dominated by particularly tall sagebrush (i.e., basin big sagebrush [*A. tridentata tridentata*]), with a native understory of forbs and grasses (Lyon and Anderson 2003). Upon initial observation, the nest contained 3 nestlings aged 1 d post-hatch. We continued monitoring the nest for 3 d until the nest contents were depredated by an unknown predator. On 3 June 2016, we identified a Loggerhead Shrike pair using the Sage Thrasher nest for their own breeding attempt. When we first discovered the nest, before any eggs had been laid, the nest had the structural characteristics of a Sage Thrasher nest (i.e., a stick nest lined with stripped sagebrush bark). We monitored the nest weekly and observed structural adjustments to the nest between day 3 and 12 of the incubation period (15–24 June 2016). At this point, most of the large sticks on the exterior of the nest cup had been removed, leaving only the interior lining of the cup intact. During the next week, the shrikes added plastic strands, rabbit fur, and feathers to the nest cup lining (Fig. 1c). The removal of the larger sticks from the nest exterior likely compromised the structural integrity of the



Figure 1. (a) A big sagebrush (*Artemisia tridentata*) shrub located along a dry creek bed in the Upper Green River Basin, WY. The arrow indicates the location of the original Sage Thrasher nest; (b) Sage Thrasher nestlings in the nest structure built by a Sage Thrasher pair in mid-May 2016; (c) Loggerhead Shrike eggs in the same Sage Thrasher nest in late-June 2016. Deconstruction of the nest exterior by the shrike pair, as well as lining additions, are visible. Photos by Anna D. Chalfoun (a and b) and Lindsey E. Sanders (c).

nest because a large portion of the nest cup was destroyed 1 week later. Whether the shrike nest failed due to predation or collapsed due to a lack of structural integrity, however, was unclear.

Discussion

We documented a Loggerhead Shrike pair in the Upper Green River Basin, Wyoming, in 2016 reusing a nest structure originally built by a Sage Thrasher pair in the same season. Our observation constitutes one of only a few known examples of an open-cup nesting passerine repurposing the nest of another species within the same breeding season.

Although interspecific nest reuse is rare, a few instances are known among passerines that nest in open cups, the majority involving Common Blackbirds (*Turdus merula*) reusing thrush nests abandoned earlier in the same breeding season (Cohen 1852, Wysocki 2004). There are also rare accounts of 2 conspecific and 2 heterospecific females concurrently incubating eggs within the same nest, effectively sharing the nest (Wysocki and Walasz 2004, Govoni et al. 2009). Loggerhead Shrikes occasionally reuse their nests from the

same breeding season (Ellison 2008) and sometimes re-line and reuse nests from previous years' nesting attempts (Miller 1931, Woods and Cade 1996, Yosef 2001). Shrikes also reuse abandoned Black-billed Magpie (*Pica hudsonia*) nests semi-regularly (Porter et al. 1975, Woods and Cade 1996, Humple and Holmes 2006). Black-billed Magpies build dome-roofed nests (Quesada 2007), which may provide some added protection from predation (Møller 1989, Lindell 1996). To our knowledge, however, shrikes have never been observed reusing the nest of any other species.

Nest reuse generally confers some benefit to the nesting bird, such as decreased predation risk (Styrsky 2005), use of a prime nesting location (Wysocki 2004), or increased time and energy for foraging (Gauthier et al. 1994). The shrike pair at our study site nested in a Sage Thrasher nest that had already been depredated earlier in the season, so the site would be unlikely to confer decreased predation risk to the shrike pair unless they depredated the Sage Thrasher nest. Songbird nestlings provide a nutritious food resource for Loggerhead Shrikes during the breeding season (Reynolds 1979, Humple 2008). Although the nest predator responsible for the Sage Thrasher nest failure is unknown, Loggerhead Shrikes are known to be aggressive toward Sage Thrashers (Reynolds 1979) and are confirmed predators of Sage Thrasher nests in our study area (Hethcoat and Chalfoun 2015). In addition, the nest was located in a large, dry river bed, with ample large sagebrush shrubs suitable for a Loggerhead Shrike nest, providing abundant alternate suitable nesting sites (Lyon and Anderson 2003). The shrike pair may have also benefitted from the decreased effort associated with selecting and building the nest structure (Moreno et al. 2010, Mainwaring and Hartley 2013), although they subsequently deconstructed much of the Sage Thrasher nest.

While Loggerhead Shrikes have been observed re-lining nests in previous studies, the removal of the exterior sticks from the nest in this study was unique. Loggerhead Shrike nests are often constructed with bulky twigs and sticks on the exterior (Yosef 1996), similar to Sage Thrasher nests (Reynolds et al. 1999). Why the shrike pair would remove the exterior sticks of the thrasher nest, leaving only the interior cup as the nest structure and compromising the integrity of the nest, is puzzling. Moreover, we did not observe the nest

failure and therefore do not know whether the shrike nest failed because of predation or the structural instability of the nest cup.

The reuse of a Sage Thrasher nest by the Loggerhead Shrike pair at our study site provides more evidence that nest reuse occurs between passerines that nest in open cups. To our knowledge, this is the first report of a Loggerhead Shrike reusing a Sage Thrasher nest. Although documentation of nest reuse for open-cup nesting passerines is starting to appear in the literature, its pervasiveness across species is still unknown. More reports of these rare events are needed to better understand the ubiquity of interspecific nest reuse among passerines and the associated benefits.

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