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## Sage-Grouse Nests in an Active Conifer Mastication Site

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**SAGE-GROUSE NESTS IN AN ACTIVE CONIFER MASTICATION SITE**—Greater sage-grouse (*Centrocercus urophasianus*; sage-grouse) have experienced long-term range-wide population declines and now may occupy less than 50% of their historic range (Schroeder et al. 2004). Conifer encroachment into sagebrush (*Artemisia* spp.) habitat was identified as a major conservation threat by the U.S. Fish and Wildlife Service (USFWS) as the agency reviewed the listing status of the species for possible protection under the Endangered Species Act of 1973 (USFWS 2013).

Conifer encroachment into sagebrush habitats negatively impacts sage-grouse at landscape scales (Doherty et al. 2008, Casazza et al. 2011, Baruch-Mordo et al. 2013). Sage-grouse will utilize areas following conifer removal (Frey et al. 2013, Cook 2015). However, to date no one has documented sage-grouse nesting behavior as an immediate response to recently completed conifer removal projects (Knick et al. 2014).

On 12 March 2015 we captured and radio-collared a yearling female sage-grouse (hereafter 0422) with a very high fre-

quency (VHF) radio-collar (Advanced Telemetry Systems, Inc., Isanti, MN, USA). We used ground-based telemetry to relocate 0422 every 3–4 days pre-incubation and then every 2 days during incubation until nest fate was determined. On 16 March 2015 a conifer mastication project of ~233 ha was initiated on Bureau of Land Management (BLM) administered lands in our study area in northwestern Utah. The areas surrounding the conifer treatment were either open sagebrush communities or previous conifer removal areas (Falkowski et al. 2008; Fig. 1). Treatment activities occurred from mid-March to mid-May 2015 and proceeded through the area from west to east generally along a north to south line. In the current and previous years, radio-collared females nested in the sagebrush areas adjacent the mastication treatments (Wing 2014, Cook 2015).

From 19 March – 3 April 2015, 0422 localized locations within ~200 m of operating mastication equipment. On 6 April, 0422 initiated incubation ~400 m west of operating equipment and was observed at the nest every other day until

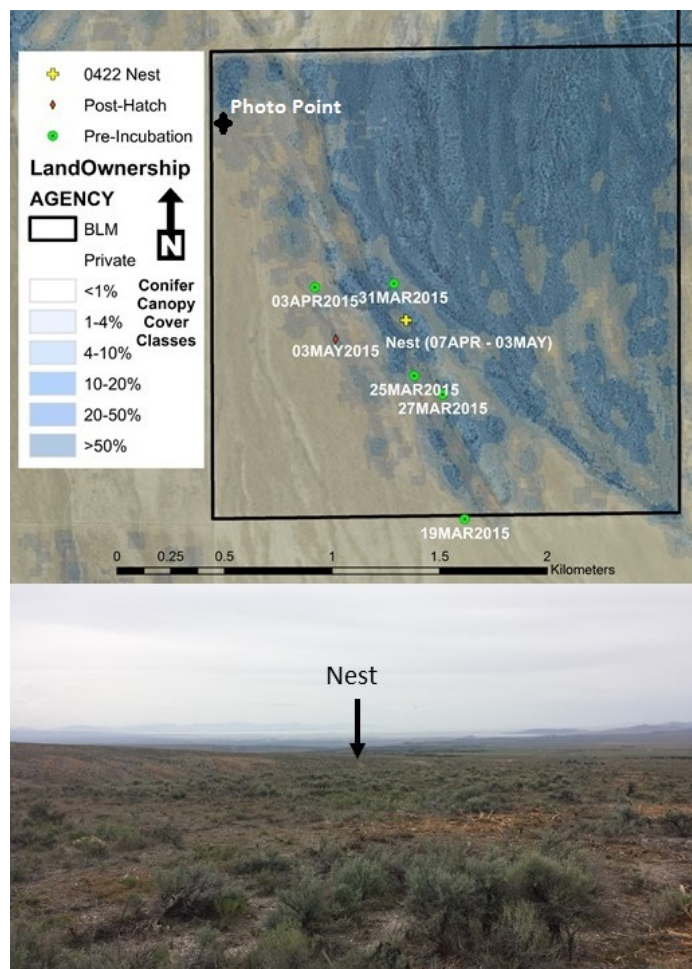


Figure 1. Locations and nest site of a female greater sage-grouse (*Centrocercus urophasianus*) in a recently masticated conifer site (~233 ha), March–May 2015, Park Valley, Utah. Imagery and conifer canopy cover data were pre-2015. Bottom photo shows post-mastication on the site.

3 May when all 5 eggs hatched. The area around the nest site was previously a mix of sagebrush canopy and conifer cover in phase II. Conifer cover in phase II is considered a state of codominance with sagebrush and herbs within the vegetation community (Miller et al. 2005). Following treatment, undisturbed live shrub canopy cover was 16.6%. Following hatch, 0422 moved northwest approximately 0.5 km out of the treatment area into a sagebrush dominated habitat patch >1,295 ha.

Past research has documented sage-grouse avoidance of conifer cover (Doherty et al. 2008), negative effects of conifer cover on lek counts (Baruch-Mordo et al. 2013), and sage-grouse habitat-use following conifer removal (Frey et al. 2013). However, to our knowledge, we present the first documentation of a sage-grouse using a conifer masticated area during an active treatment for breeding habitat, specifically nesting. Our observation provides support for previous recommendations that if conifer treated areas are located adjacent to occupied sage-grouse habitat, these restored sagebrush communities may become readily occupied (Cook 2015).

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