

POSITION STATEMENT

TO: Atlantic Rim Project Area Review Team

FROM: Atlantic Rim Shrub-Dependent Songbird Wildlife Working Group

SUBJECT: Final Shrub-Dependent Songbird Impact Thresholds

I. INTRODUCTION

This is the final position statement on Shrub-Dependent Songbird (SDS) impact thresholds prepared by the Atlantic Rim SDS Working Group (WG). This final statement incorporates some minor changes to the earlier draft version in response to comments received from the natural gas field leaseholders and other members of the Atlantic Rim Review Team.

The wildlife Performance Goals in the Atlantic Rim (AR) Record of Decision (ROD) were established for the purpose of protecting key wildlife populations and habitat during development of energy resources in the AR project area. One Performance Goal was established for Shrub-Dependent Songbirds. The Goal states: *Assure occupied habitat for shrub-dependent songbirds is well distributed throughout the project area* (AR ROD, p. 19).

The purpose of this memorandum is twofold. First, to clarify the meanings of *occupied habitat* and *well-distributed*, as used in the SDS Performance Goal. Second, to identify specific population *impact thresholds*, or *limits*, that if reached, would **trigger** a mitigation and adaptive management process, which would include consideration of measures to help achieve the SDS Performance Goal.

The recommendations in this memorandum supersede the recommendations presented in the WG's previous memorandum dated March 2012.

II. BACKGROUND

The Atlantic Rim (AR) Record of Decision (ROD) states: *The purpose of monitoring is to assess the status of the performance goals, measure and detect trends, or detect any other undesirable effects.*

In 2007, monitoring of SDS populations in the AR Project Area was initiated when four U.S. Geological Survey (USGS) Breeding Bird Survey (BBS) routes were established along existing roads in the project area. The objective was to compare the data from these routes to data collected along similar routes located outside the project area. To date, BBS surveys have been conducted in the project area for five consecutive years. However, subsequent review of the protocol and data showed the technique was not well-suited to statistical analyses or for answering other key questions related to the achievement of the SDS Performance Goal (see WG memorandum to the AR Review Team dated April 2012, titled *Atlantic Rim Shrub-Dependent Songbird Survey Requirements*).

In response to the above-described concerns, a new avian monitoring protocol known as *Integrated Monitoring in Bird Conservation Regions*, or IMBCR, was implemented in 2010. The new protocol was designed by the Rocky Mountain Bird Observatory and is currently being used in 12 different States and 7 different Bird Conservation Regions (BCRs), including BCR 10, within which the project area is located. The IMBCR protocol is statistically robust and has the power to make inferences about avian species occurrence and population sizes at different geographic scales (White et. al. 2011; Hanni et. al. 2010). The WG believes the IMBCR protocol will provide appropriate data for answering questions related to the status of SDS populations in the project area along with statistical measures that can be used to make inferences regarding achievement of the SDS Performance Goal.

III. DISCUSSION

Sample site selection using the IMBCR study design protocol involved stratification of the project area into *low-* and *high-density* zones of development. Site locations were then selected within these strata using a random and spatially-balanced algorithm¹ that provides a more representative distribution of sample sites than the typical simplistic random sampling of sites most often used in other natural resource studies. The WG believes that selection of sample site locations using the IMBCR method intuitively addresses the issue of *well-distributed* habitat. The study design also allows for some flexibility to re-stratify the *low-* and *high-density* zones of development in future years without compromising the statistical usefulness or validity of the monitoring data.

Each sample site consists of 16 observation points (equivalent to a 16-point transect) arranged in a 4X4, 1-km² grid. The points are spaced 250 meters apart. During sampling, a songbird species is recorded as present if it is detected within 125 meters of any one or more of the 16 points within the grid. The method also incorporates a statistical procedure to account for species that are present but go undetected by the observer. Statistical analysis of the data from all sampling locations then generates a measure of occupancy by species. The measure is in terms of the proportion of sample site locations (1-km² units) *occupied* by a species. This measure can be extrapolated to the entire project area.

Based on the IMBCR monitoring methodology and associated distribution of sample sites and occupancy measures by species, the WG interprets SDS habitat as *occupied* and *well-distributed*, as used in the Performance Goal, when the following two conditions are met:

- (1) During future breeding seasons, representative species of SDS birds continue to occupy all IMBCR sample sites in relatively similar proportions to occupancy estimates generated from existing baseline data collected from these sites in 2010 and 2011.
- (2) Unusual or substantial changes in occupancy of sample sites (due to range-wide factors such as drought or disease, etc.) can be correlated with similar changes in occupancy of representative species on IMBCR sample sites located on BLM lands throughout Bird Conservation Region 10. For example, if drought or disease, or other factors, were to affect the occupancy measure of sample sites within the project area, the same factors are also expected to affect the occupancy measure of sample sites throughout BCR 10. Occupancy of sample sites in BCR 10 would be used as a study control for comparison purposes.

Data collected and analyzed using the new IMBCR protocol during the 2010 and 2011 field seasons (Van Lanen et. al. 2011 and 2012) will serve as the baseline for monitoring future trends for SDS populations in the project area. Data collected during the 2012 field season may be incorporated into the baseline data or analyzed for trends when funding becomes available.

¹The algorithm is statistically known as a *generalized random-tessellation stratification*, often abbreviated as GRTS.

IV. IMPACT THRESHOLDS FOR SHRUB-DEPENDENT SONGBIRDS

The WG has developed two recommended monitoring thresholds for SDS in the AR project area, based on the IMBCR statistical measure of *occupancy*.

- (1) A 10% decline in occupancy at the 1-km² scale, demonstrated with 90% confidence, compared to the baseline estimates produced in 2010 and 2011 for any priority species (see Section V below) within the high-development zone stratum. Additionally, differences in occupancy must exceed any detected negative decline within the low-development zone stratum, or the surveyed control stratum of BCR 10, by at least 2%.
- (2) A 25% decline in occupancy at the 1-km² scale, demonstrated with 90% confidence, compared to the baseline estimates produced in 2010 for any non-priority songbird species. As in (1) above, any differences in occupancy by non-priority songbirds must exceed any detected negative declines within the low-development zone stratum, or the surveyed control stratum of BCR 10 by at least 2%.

It is important to note that most populations of SDS may be relatively slow to respond to natural gas field development activity in the AR project area. Indications of trends toward or away from achieving the Performance Goal may not be evident for as many as 3-5 years or longer, depending on the rate of field development or biological response lag-time by some populations.

V. PRIORITY SPECIES - *Shrub-dependent Songbirds*

The Working Group has identified three species of shrub-dependent songbirds that would be ***priority species*** for monitoring in the AR project area. These species were selected because they are most representative of the shrub-dominated habitats found throughout the AR project area. All three of these species are categorized as either BLM Sensitive Species or by the Wyoming Game and Fish Department as Species of Greatest Conservation Need (WGFD 2010). They include the Brewer's Sparrow, Sage Thrasher, and Sage Sparrow.

The WG also intends to monitor the Green-tailed Towhee as a priority species for two reasons. First, like the aforementioned species, it is primarily dependent on the shrub-dominated habitats typical of the AR project area. Second, the baseline 2010-2011 IMBCR monitoring data indicated the Green-tailed Towhee is present in relatively high numbers within zones of low-density development in the project area; whereas, its numbers are relatively low within the zones of high-density development. Therefore, the species may be unusually sensitive to development activity and may be one of the first to respond to any effects from field development or reclamation.

The Baird's Sparrow, a grassland species that was incorrectly identified in the Atlantic Rim Final EIS on page 4-90 as a sagebrush-obligate songbird that occurs in the project area, has been dropped as a priority species for monitoring.

VI. RECOMMENDATIONS

The WG recommends adoption of the above-described monitoring impact thresholds for SDS in the AR project area. If future analyses of IMBCR monitoring reports or data indicate that either of the SDS thresholds have been reached or exceeded, the WG would conduct a complete analysis of the available data and make appropriate recommendations, if any, for management actions that would help promote achievement of the SDS Performance Goal. Such actions may include, but are not limited to, the development of recommendations for mitigation measures or adaptive management actions as directed by the AR ROD. Finally, the importance of on-going implementation of the IMBCR monitoring program within the AR project area cannot be understated. Proper sampling and analysis of monitoring data are a pre-requisite for determining achievement of the SDS Performance Goal.

Literature Cited

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