WYOMING GAME AND FISH DEPARTMENT
UNGULATE MIGRATION CORRIDOR STRATEGY

February 4, 2016

Action 1 – Update the Wyoming Game and Fish Commission's Mitigation Policy

The Wyoming Game and Fish Department (Department) recommends the Wyoming Game and Fish Commission designate ungulate migration bottlenecks and ungulate stopover areas as "Vital" under the Commission's Mitigation Policy. Under the Commission Mitigation Policy definition of 'Vital' habitat, "The Department is directed by the Commission to recommend no significant declines in species distribution or abundance or loss of habitat function. Some modification of habitat characteristics may occur, provided habitat function is maintained".

Action 2 – Designate Ungulate Migration Corridors

The Department will designate Ungulate Migration Corridors in accordance with the Department's Standardized Definitions for Seasonal Wildlife Ranges (attached). Data used for designating corridors will be shared with interested stakeholders.

Action 3 – Risk Assessments, Research and Proactive Actions to Conserve Migration Corridors

The Department will conduct a risk assessment (analysis of existing threats, potential for threats and opportunities for conservation actions) for each designated Ungulate Migration Corridor. The Department will work with stakeholders to review existing information and collect additional data to help determine risks, existing protections and appropriate management actions. The Department will also continue to participate in the Wyoming Migration Initiative and additional migration corridor research work by the UW Coop. Fish and Wildlife Research Unit and other partners. The Department will work cooperatively with stakeholders to identify related research and proactive conservation actions (e.g., conservation easements; fence modifications; habitat improvement projects) to conserve migration corridors. Conservation actions will be evaluated to determine overall effectiveness.

Action 4 – WGFD Input on Federal Surface Projects and Planning Efforts

On a case-by-case basis, when commenting on federal surface projects and land use planning efforts, the Department will recommend measures to conserve Ungulate Migration Corridors based on the best available science. The Department will consider input from stakeholders during development of recommendations.

UNGULATE MIGRATION CORRIDORS

February 4, 2016

BACKGROUND

Wyoming's ungulate migration corridors and stopover areas are vital to maintaining big game populations. Recent research is providing new insight into how these seasonal habitats are used by ungulates. As managers of the state's wildlife resource, it is important that the Department apply this new knowledge in order to improve on the ground management and conservation. The overarching goal of the Department is to conserve and protect ungulate migration corridors, stopover areas and bottlenecks so that these landscape features persist in form and function.

The Commission has already committed to the importance of migration habitat. For example, at their July 2015 meeting, the Commission approved an updated version of The Wyoming Mule Deer Initiative (MDI). This MDI notes that mule deer have declined by about 40% in the past twenty years. The primary reason for the decline is a reduction in habitat and habitat quality. That is why the Commission also approved 2.5 million dollars as seed money for cooperative mule deer habitat work.

The MDI notes that migratory segments of a population are typically the most productive and that development that disrupts migration can have herd level impacts. Two of the overarching goals of the plan relate directly to conservation of mule deer habitat:

- Goal 1. Conserve, enhance and restore mule deer habitat essential for population maintenance, reproduction and survival.
- Goal 7. Collaborate with federal and state land management agencies to develop land use policies that will conserve and improve mule deer habitats.

Specific habitat objectives of the plan include:

- Avoid or minimize impacts to mule deer migration routes.
- Mitigate impacts of large-scale natural resource developments. Project development and operations plans should include avoidance as well as both onsite and offsite mitigation, as appropriate, to offset unavoidable habitat losses and maintain mule deer populations.

In addition, the Commission approved an updated version of The Strategic Habitat Plan at their September 2015 meeting. Goal 1, Strategy V specifically calls on the Department to "Protect and maintain big game migration routes and stopover areas as well as other important areas of wildlife movement." Additionally, Action (c) directs the Department to "Maintain wildlife migration corridors through avoidance and mitigation measures."

CURRENT KNOWLEDGE

Current research cannot answer every question related to migration nor document every physiological or behavioral impact to big game during their migration. The studies do, however, provide new science on important factors that heretofore have been poorly understood, and they indicate areas for future research to help improve our understanding of ungulate migration.

Sawyer and Kauffman (2011) found that approximately 95% of the migratory period is spent foraging at stopover areas. Habitat quality is higher in stopover habitat than in the area between stopover sites. In this study, deer used the same stopover areas between years during all migratory periods. Avoidance of disturbance on and around stopover areas was important to migrating ungulates while disturbance in the areas between stopover areas was tolerated.

Lendrum et al. (2012) and Sawyer et al. (2013) found that given an increase in disturbance, ungulates may modify the timing of migration, constrict the size of the area used for migration and move through areas of increased development faster. Changing the timing of migration or moving from one seasonal range to another faster (e.g. winter range to summer range) results in the loss of synchronization between plant green-up and ungulate movements thereby reducing energy intake (Sawyer and Kauffman 2011). Both Lendrum et al. (2012) and Sawyer et al. (2013) found correlations between disturbance levels and measurable changes in animal response as indicated by their movement rate and locations. Sawyer et al. (2013) found ungulates moved through disturbed areas faster, detoured around disturbance, and reduced their use of stopover areas, thus constricting their migration both temporally and spatially. Importantly, both studies recommended keeping the standard for allowable disturbance within migration corridors below the level of detected impact.

SCIENCE AND RESEARCH NEEDS

There is increasing science on the importance of migration, migration corridors and stopover areas to migrating ungulates (Sawyer et al. 2005, Sawyer and Kauffman 2011, Lendrum et al. 2012, Sawyer et al. 2013).

The Department developed a working definition of terms currently in use for migration habitat and also codified its process for modifying existing seasonal range maps and migration habitat. These definitions and the process were added to the Department's Standardized Definitions for Seasonal Wildlife Ranges.

When comparing the current Commission Mitigation Policy with the emerging science, the Department is recommending that the Mitigation Policy be modified in order to address new migration terminology.

The studies measured movement rates and patterns of use by mule deer but did not measure physiological response to disturbance. Behavioral response to disturbance is assumed to equate to increased energy demands that decrease the ability to satisfy the basic life needs of survival and reproduction. During fall migration, ungulates are doing all they can to increase fat

depositions as they move toward winter range. During spring migration, nutritional availability is critical to does in late stages of pregnancy for late-stage fawn development and lactation. Future research is warranted to better understand physiological impacts of added stress during ungulate migration.

The cumulative impacts related to disturbance in migration corridors also deserve more attention. Sawyer, et al. (2013) measured response to different levels of disturbance in portions of a migration corridor, but did not measure at what point the level of disturbance becomes so high within portions of a corridor or across an entire corridor that the benefits of migration cease to exist. Although there is new science, it cannot, as yet, provide a definitive answer on acceptable levels of disturbance or fragmentation throughout an entire migration corridor or within a portion of it. It is also important to understand that migratory behavior can be lost (Bolger et al. 2008, Harris et al. 2009) and loss of the ability to migrate has led to sudden and dramatic declines in animal populations (Bolger et al. 2008). Migration is a learned behavior that may be difficult to reestablish once lost or diminished (Sawyer et al. 2013).

LITERATURE CITED

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