

APPENDIX VIb

REVISING HERD UNIT SEASONAL RANGE MAPS AND MIGRATION CORRIDORS

(July 2002)

Background

Knowing where big game seasonal ranges are and understanding how and when they are used are important for several reasons. Since wildlife and habitat are so closely tied, it is important to manage and protect habitat so wildlife has the seasonal life requirements necessary to persist. Simply managing populations is not enough to assure the long-term welfare of wildlife species. By understanding where wildlife occur during different seasons of the year and the value and make-up of these habitats, managers can maintain, increase, enhance and/or protect them. Seasonal range delineations depict lands important in each season for certain biological processes (i.e. birthing) within each herd unit. These delineations are based on decades of observation records, research and on the knowledge of Wyoming Game and Fish Department (Department) managers, other natural resource agency personnel and landowners.

The Department began delineating crucial winter ranges in the early 1960s. Herd unit maps and seasonal range overlays were first developed in the early 1970s as the Department began to manage big game based upon the 'management by objective' system. Our first efforts to delineate seasonal ranges relied primarily on knowledge of local wildlife biologists and game wardens. The first step was to delineate boundaries of populations (herds) that were as discrete as could be determined at the time. The Department's criterion for discreteness required less than 10% interchange with adjacent herds. The first delineations were done with the understanding herd unit boundaries would be refined as additional, more detailed information was collected. Over the years, dozens of tagging and radio collar studies have been used to refine these boundaries. Herd unit base maps were originally Bureau of Land Management (BLM) 1:126,720 scale surface status maps. Local managers then used current and historical information to draw seasonal ranges, seasonal movement patterns and specific migration corridors on clear Mylar overlays matched to each base map. When the BLM converted to 1:100,000 scale surface status maps in the 1990s, all Department game herd unit base maps and seasonal range overlays were changed to this scale.

The Department originally delineated seasonal ranges based initially on definitions it developed. Federal agencies, including the BLM and U.S. Forest Service (USFS) used their own definitions at that time. In the mid-1980s, the Wyoming Chapter of the Wildlife Society (TWS) developed standard definitions that could be used by all agencies. In 1989, the BLM and the Department requested TWS to review and update these definitions. A committee of TWS members from several state and federal agencies, developed the current definitions (Attachment A).

Data to revise seasonal range revisions have come from three sources. Seasonal data from the Department's Wildlife Observation System (WOS), composed of sightings within time periods during the year that correspond to times animals would be using certain types of seasonal ranges, is the primary source. The WOS is a computer database developed by the Department in the 1970s, consisting of wildlife observations. Records

are contributed by Department personnel, other agencies, and industry biologists and consultants. WOS records include big game sex and age classifications, winter trend counts, harvest field checks, and surveys conducted specifically to document seasonal range use. The WOS contains well over a million records, and these records can be sorted and retrieved based upon combinations of attributes, including species, location and date.

Research data are also used to revise or update seasonal range maps. The Department, other agencies (such as the BLM and USFS), universities, and industry have performed investigations to study animal movements and to improve seasonal range delineations. In some cases, research has been conducted specifically to evaluate the integrity, or discreteness, of existing herd delineations. Usually, these investigations involve animals marked with neck or radio collars or ear tags. Other studies have provided collateral information about movements, seasonal ranges and herd unit integrity.

Finally, we consider the knowledge of field personnel and landowners who are familiar with the land, its use by wildlife and wildlife movements. Although not 'hard' data, this knowledge is critically important for interpreting information and judging data quality. In some cases, it is essential in filling gaps in the data.

The Department made two concerted efforts, first in the late 1970s then again in the mid-1980s, to review and update seasonal range overlays for big game herds. During these efforts, we emphasized delineation of winter ranges. All WOS records within the geographic area of each big game herd for all years since the last review were hand plotted onto the existing seasonal range overlays by Biological Services personnel in the Cheyenne office. Observations recorded during normal to severe winters were considered most representative of animals' use of winter, crucial winter and severe winter relief seasonal ranges. In essence, seasonal ranges are identified based upon the animals' repeated presence in specific locations during the appropriate times of year and weather conditions. During these statewide seasonal range revision efforts, patterns of observations were compared to the existing seasonal range delineations to provide a basis for revisions.

After the new data were plotted, each overlay was sent to the appropriate field personnel for review. These personnel confirmed existing delineations or made determinations about revisions based on the new information and provided other recommended revisions based on their knowledge of each herd. The overlays were then returned to Cheyenne for redrafting and distribution.

Not all revisions have been based on formal statewide efforts like those done in the 1970s and 1980s, or on the results of specific research projects. Field personnel have been encouraged to make revisions any time substantial new information indicates revisions are warranted. Personnel are encouraged to keep seasonal range overlays and herd unit maps as current as possible. In fact, since the two large-scale efforts in the 1970s and 1980s, all subsequent revisions have been made case-by-case based on the recommendations of field personnel. Many changes have been made to the herd unit maps since they were originally developed. Herd unit boundaries and seasonal range delineations have been refined as the technology used to collect information has improved and the amount of information has increased. Herd units have been combined and portions of one or more have been incorporated into others as managers have

obtained better information. At the same time, seasonal ranges have become much more clearly delineated.

The previous standard method for seasonal range map revisions was as follows. When 'hard copy' maps and overlays were submitted for revision, recommended changes were depicted on Mylar overlays by drawing new lines and noting lines that were to be deleted. The corrected overlay, accompanied by a written justification was sent to Biological Services in Cheyenne along with a written justification. A list for distribution of the revised overlay or updated GIS map was also provided. As is still the case, the proposed revision was evaluated by Biological Services and discussed with Wildlife Division administration. If the justification was adequate and there was concurrence in Cheyenne, the hard copy written revision justification was initialed and dated by the Supervisor of Biological Services and placed in the herd unit file maintained by Biological Services. Biological Services then forwarded a Services Division 'Project Request' form and the 'marked up' Mylar overlay to the Conservation Engineering Section, which redrafted the overlay. When the revision of a Mylar overlay was completed in draft form, a copy was sent to the field biologist for final review. Once the draft was accepted, a copy of the dated, revised overlay replaced the superceded overlay in the Biological Services files. Copies of Mylar overlays were also distributed to the appropriate Department regional offices and field personnel and others identified in the distribution list.

Despite decades of data collection and analysis, our knoweldge is still not complete. But, those who use our information have often acknowledged its usefulness in planning developments. And, new information continues to reinforce much of what earlier delineations depicted. For example, during hearings on Red Rim in the 1970s, the Department's authority to designate crucial winter ranges was challenged, and developers insinuated we had drawn lines there to prevent development. A 1964 map confirmed that winter range at Red Rim was known years before this controversy, and research on movement of antelope in the mid-1970s simply confirmed a long standing designation that had been based on field personnel's knowledge.

The Department has continually improved both the herd unit maps and the seasonal range overlays. New technologies like Geographical Information Systems (GIS) are enabling managers to more efficiently and accurately analyze the data and revise maps.

Procedures

Seasonal range delineations should be reviewed at 5-year intervals. More frequent reviews are encouraged if substantial new information (i.e. research data) indicates revisions are warranted. Revisions should be made upon completion of any research that documents changes are needed. Only data from winters of the appropriate severity are used to evaluate seasonal ranges classified as winter range, crucial winter range or severe winter relief range. Very mild winters, such as some of those in the late 1980s, do not necessarily force animals on to true winter habitats. In these conditions, only a portion of the population may move to the vicinity of true winter ranges. But, even those animals may be distributed over a broader area that includes other seasonal ranges. A substantial portion of a population, especially in a herd unit encompassing entirely low elevation habitats, may remain distributed across summer, yearlong or other seasonal ranges during mild winters. When normal to severe winters develop, a concerted effort should be made to document the locations of animals. Regional supervisors and wildlife management coordinators should adjust work schedules accordingly and direct personnel to collect

these data. Attachment A (Wyoming Chapter of the Wildlife Society Report on Standardized Definitions for Seasonal Wildlife Ranges, Final - July 1990) provides guidance on recommended periods to collect seasonal distribution information.

The revision of a herd unit seasonal range map involves all personnel responsible for management of the herd unit, including wildlife biologists, habitat biologists and game wardens. This collaboration ensures the most comprehensive knowledge base is used to make the revision. And, it assures the personnel most familiar with the herd agree with the revision. Department personnel also consult other agencies, particularly BLM and USFS where applicable, to assure their personnel are aware of the revision and have the opportunity to provide any information they may have.

Seasonal range boundaries are drawn as precise as possible. Unless experience indicates otherwise, the outermost observation locations dictate where lines are drawn. If seasonal range boundaries are adjusted based on professional judgement, the rationale for this is explained in the documentation that accompanies the overlay correction or the revised electronic version sent to Cheyenne. Reviewers use information from several years to account for year-to-year variations in animal distributions and to avoid changes that might not reflect true shifts in use. When revisions are considered, both recent and past use are taken into account so the more recent information is considered in a historical context.

The seasonal range revision process in the headquarters office is now being done entirely by the GIS Coordinator. Recommended seasonal range changes are indicated by field personnel on Geographic Information Systems (GIS) based maps. The corrected electronic GIS map, accompanied by a written justification is then sent to Biological Services in Cheyenne. The written justification includes a description of the proposed change(s) and a rationale that indicates the informational basis for changes. All Department and non-Department personnel involved in the revision are identified. A list for distribution of the revised overlay or updated GIS map is also provided.

The proposed revision is evaluated by Biological Services and discussed with Wildlife Division administration. If they concur, the hard copy written revision justification is initialed and dated by the Supervisor of Biological Services and placed in the herd unit file maintained by Biological Services. If the written revision justification is in electronic format, the Supervisor of Biological Services types in "Approved by _____" and the date in the upper right hand corner of the first page.

If any seasonal range revisions are submitted in 'hard copy' (Mylar) format, Biological Services will arrange to have the herd unit overlay redrafted in GIS format. If the seasonal range revisions are submitted in GIS format, the GIS Coordinator may use the recommended revisions to make changes to existing digital maps. Or, the GIS Coordinator may simply include the GIS maps created in the field and reviewed by him for consistency with his conventions into the 'library' of seasonal range maps housed by the GIS Section in the Cheyenne headquarters.

If the GIS Section makes the revisions, the GIS Section may then provide a draft copy of the new overlay (in electronic or hard copy form) to the field biologist for verification of the changes, if necessary. Once the field review of the draft is completed and approved, or further corrections are noted by field personnel reviewing the draft, the final copy of the revision is made. The revised GIS based maps are then included in the GIS Section's electronic herd unit files, and the electronic maps are available from this source. Copies

are sent by the GIS Section to the appropriate WGFD personnel, offices of the federal land management agencies and other entities indicated by the field personnel submitting the revisions.