

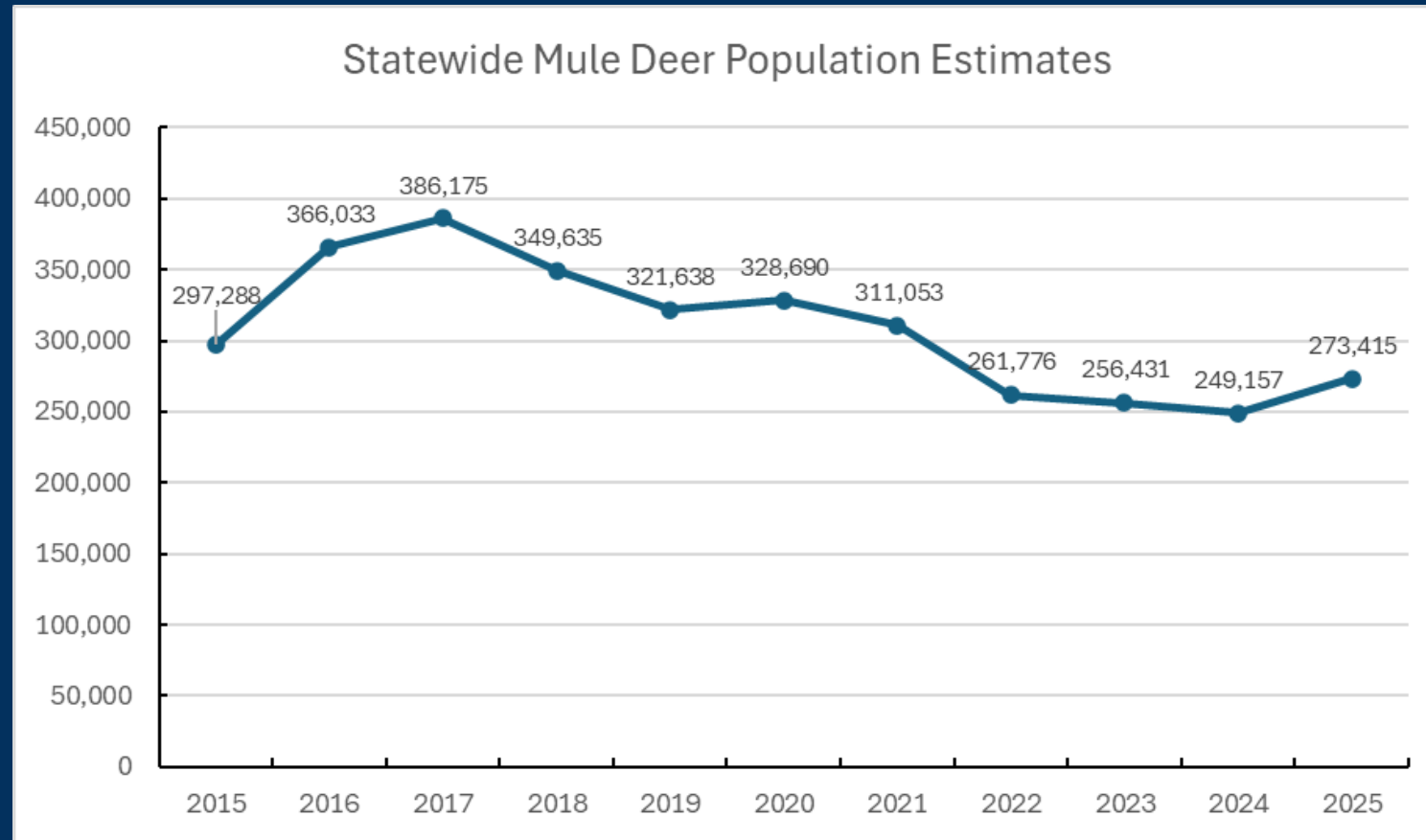
Mule Deer Management in Montana

Brian Wakeling

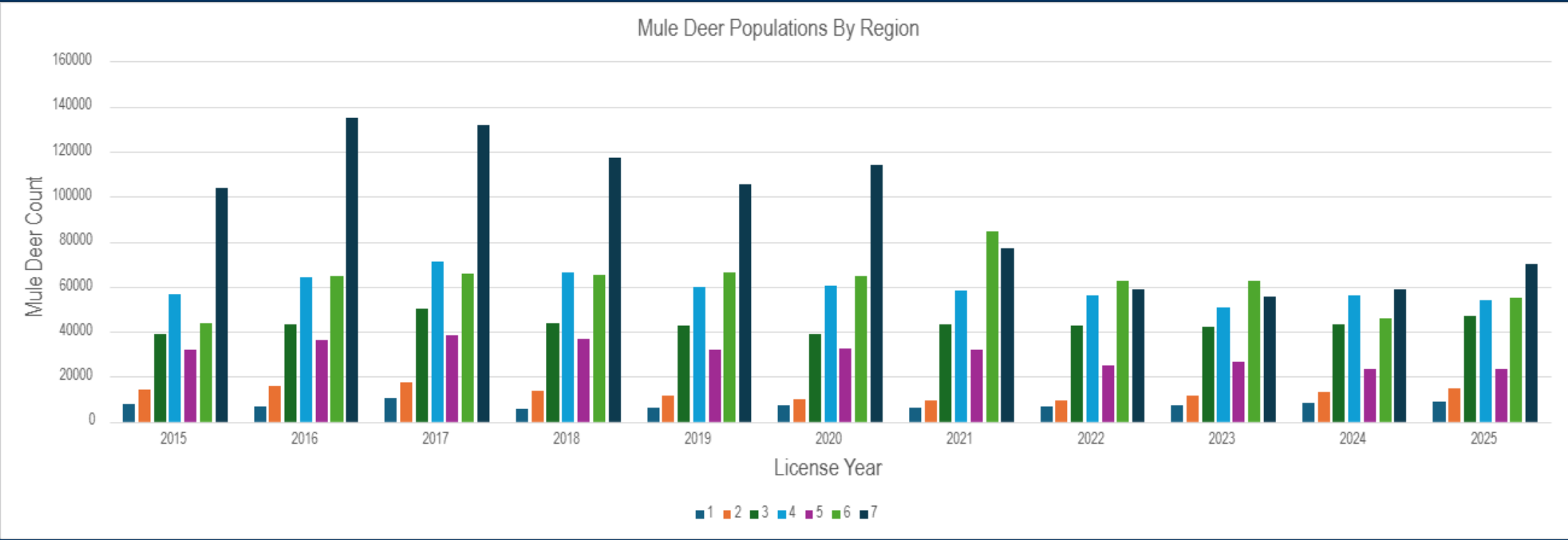
Game Management Bureau Chief



Recent trends in mule deer numbers statewide

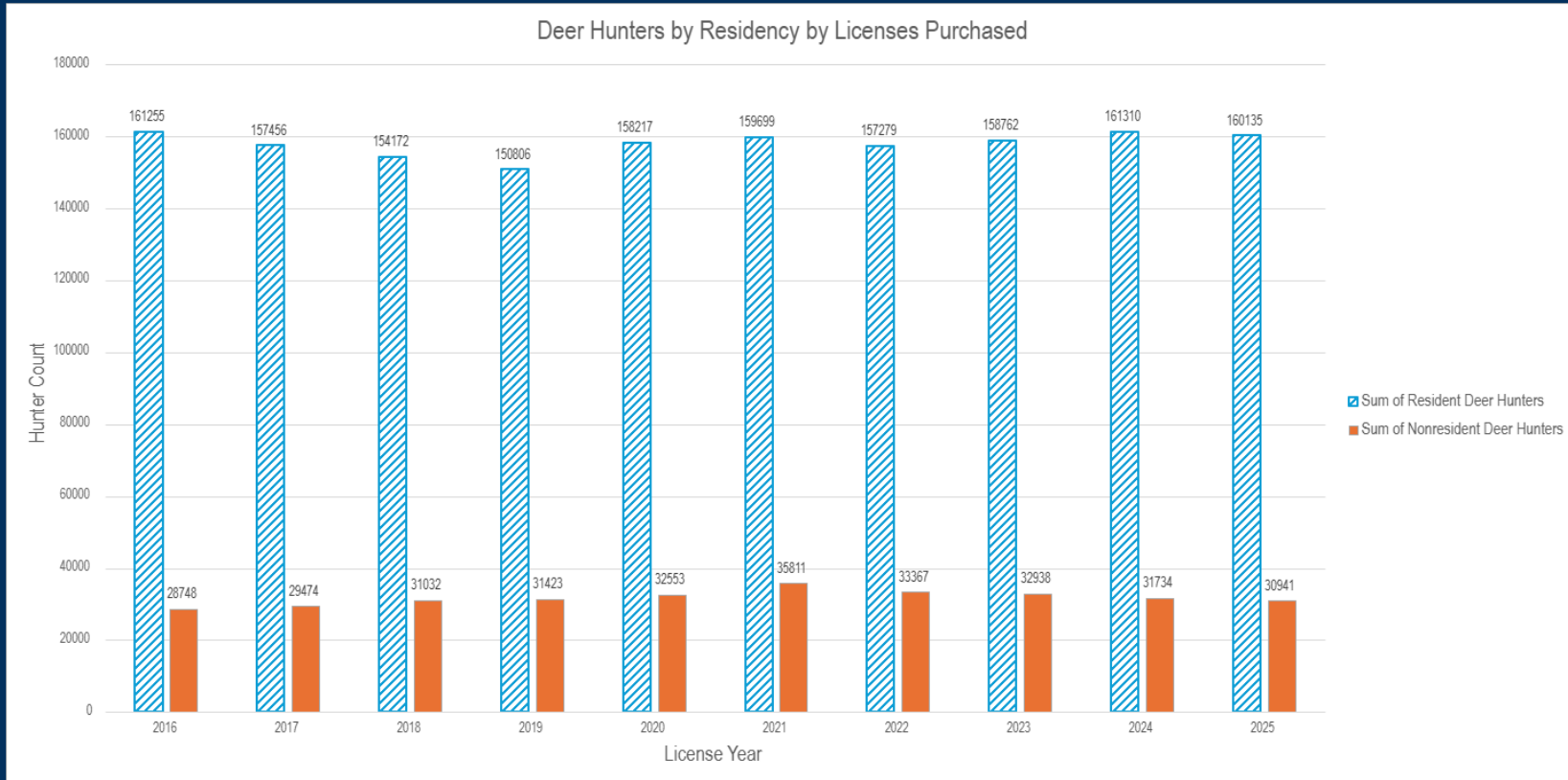


Mule deer trends by administrative region

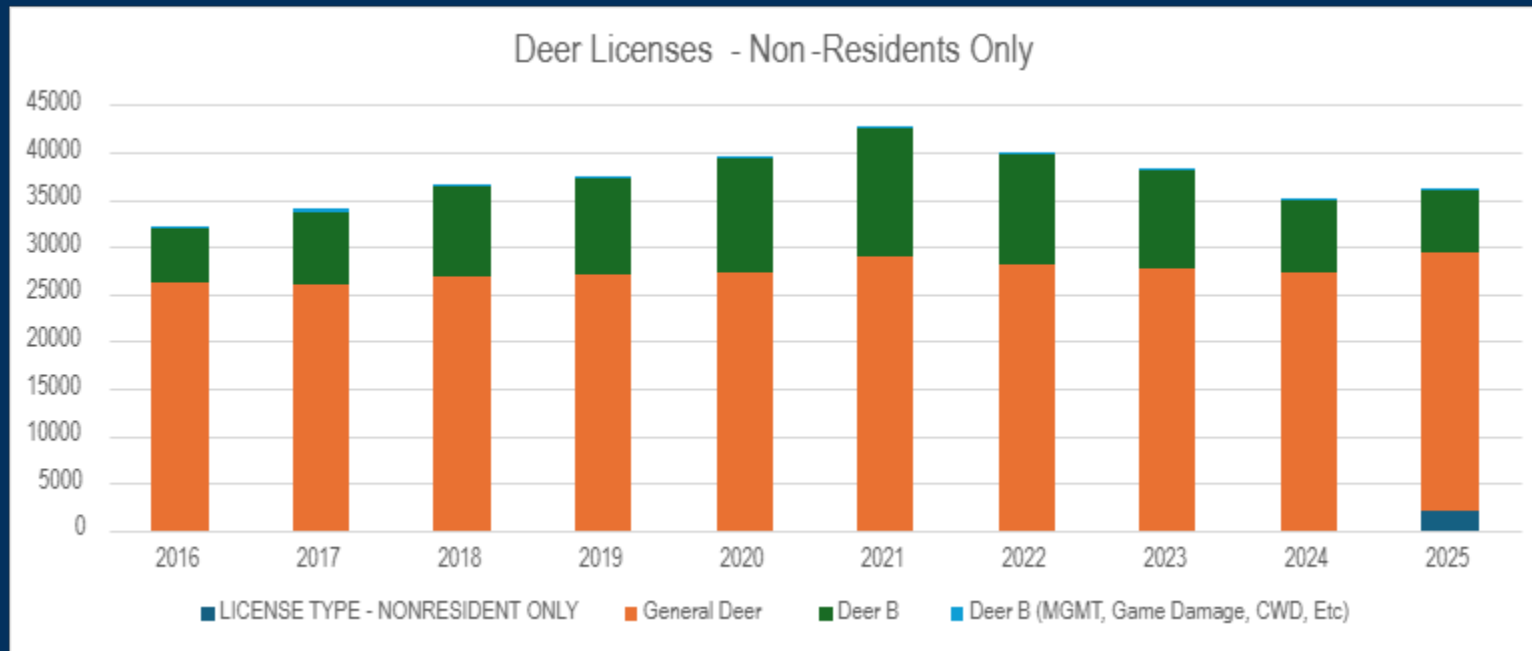


No estimates yet for 2026

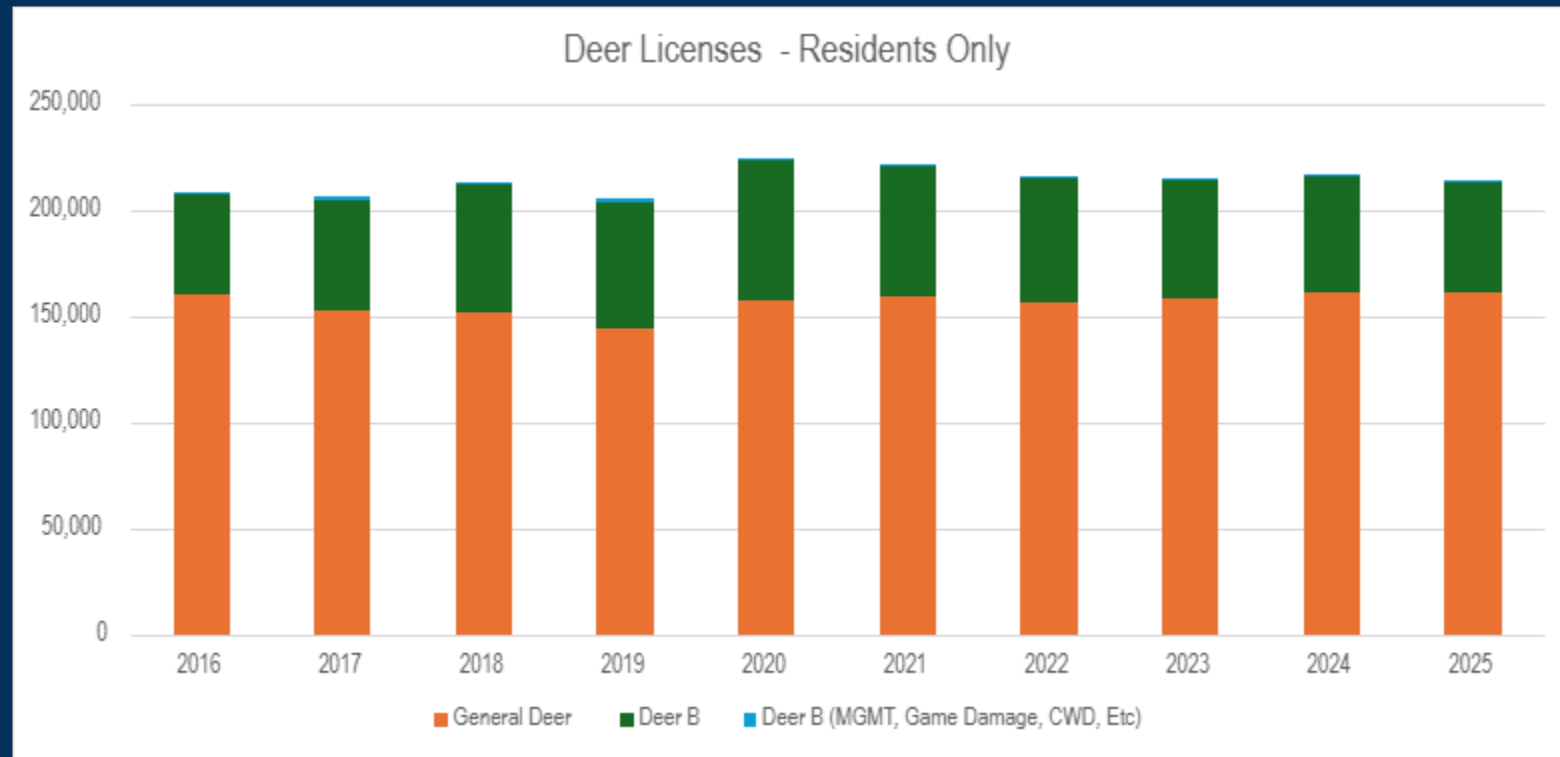
Total numbers of deer hunters by residency



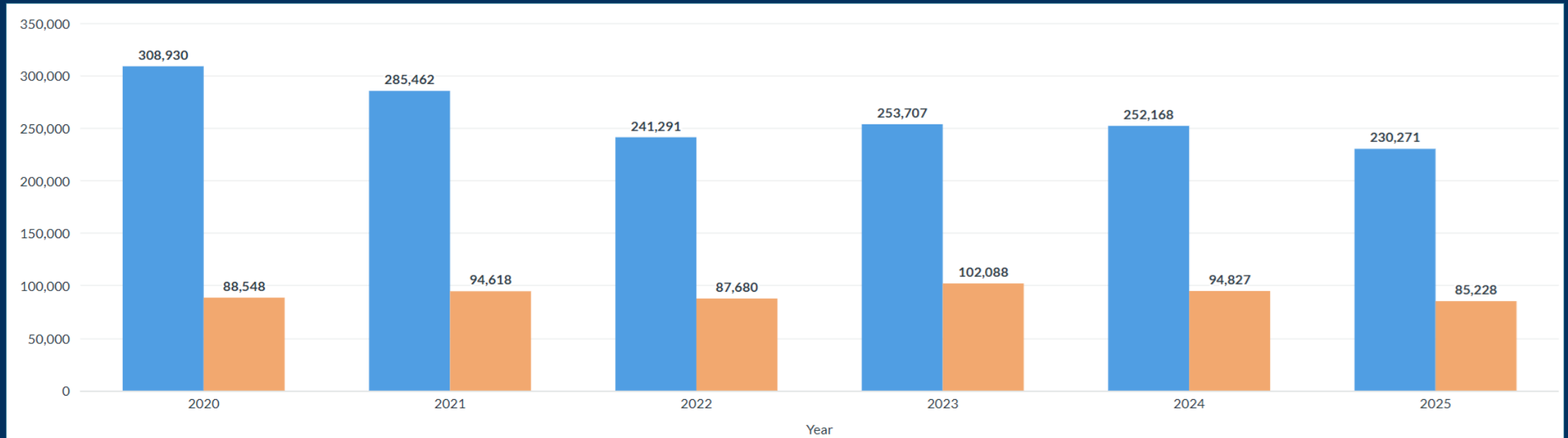
Non-resident deer license purchase trend



Resident deer license purchase trend



Hunter Days in Block Management Areas by residency, Regions 3 through 7



Recent changes by Fish and Wildlife Commission in addition to legislative changes

- Nonresident access to multiple deer licenses restricted by legislative action in 2023
- Residents may purchase no more than three deer licenses
- Reduced available nonresident deer licenses by about 2,500
- Restrictions on numbers and open areas for antlerless licenses



Future

- Favorable winter, cautiously optimistic outlook for the year
- Development and adoption of Mule Deer Plan prior to next biennial season setting process
 - Guidance for the agency, transparency for the public
 - Harvest, habitat, health
- Continued focus on human dimensions elements, to include non-resident participation and overall hunting crowding perceptions
- Upcoming management experiments to inform future actions



Upcoming mule deer research in Montana

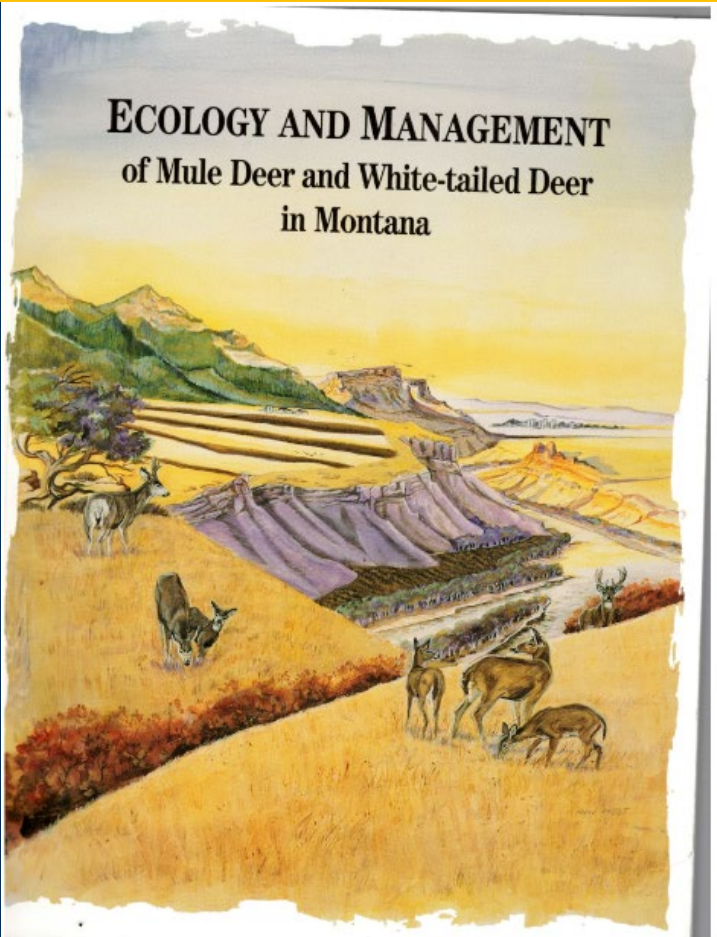
- Nick DeCesare, FWP wildlife research biologist



Shawn Stewart



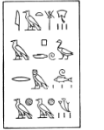
Past research led to current monitoring program



ECOLOGY AND MANAGEMENT of Mule Deer and White-tailed Deer in Montana

WILDLIFE MONOGRAPHS

A Publication of The Wildlife Society



RANGE ECOLOGY AND RELATIONS OF

Hamlin, Kenneth L.
1959, 1975. Mule deer in the
22nd and Missouri River
Breaks, Montana

IN THE

MARCH

MULE DEER IN THE MISSOURI RIVER BREAKS, MONTANA

A Study of Population Dynamics in a Fluctuating Environment

Kenneth L. Hamlin
Richard J. Mackie



PLEASE RETURN

December 1989

Montana Department of
Fish, Wildlife & Parks

RELATIONSHIPS AMONG MULE DEER FAWN MORTALITY, COYOTES, AND ALTERNATE PREY SPECIES DURING SUMMER

Hamlin, Kenneth L. Montana Department of Fish, Wildlife and Parks, 7100 State St., Lewistown, MT 59407
Shawny J. Riley, Montana Department of Fish, Wildlife and Parks, 5000 N. 10th St., Helena, MT 59601
Arnold R. Hood, Montana Department of Fish, Wildlife and Parks, 1000 N. 10th St., Helena, MT 59601
Richard J. Mackie, Montana State University, Bozeman, MT 59717

Abstract: The extent, timing, and cause of summer mortality of mule deer (*Odocoileus hemionus*) fawns were studied in relation to coyote (*Canis latrans*) population level, alternate prey population levels, and coyote food habits. Additionally, fawn mortality rates were related to supplementary information on vegetation production and fawn habitat cover. A minimum mortality of 60% of summer mortality of fawns was the result of predation by coyotes. Fawn mortality was lowest when alternate rodent populations were high. Mortality rate of fawns was not directly related to population levels of coyotes, deer mice (*Peromyscus maniculatus*), white-tailed jack rabbits (*Lepus sylvaticus*), or Nuttall's cottontails (*Oryzopsis montanus*). Vegetation production and winter snow cover may have been factors regulating alternate population and thereby fawn mortality rates. Coyote predation can reduce fawn survival in nutritionally healthy deer populations, but alternate prey population levels and cycle phase should be determined by managers prior to decisions about predator control to increase deer populations.

J. Wildl. Manage. 46(2):489-499

Mule deer populations associated with timbered breaks-baldpate habitats in north-central Montana declined sharply during the early 1970's, apparently as a result of extensive overwinter mortality in 1971-72 followed by low fawn production or survival (R. J. Mackie, unpubl. rep., Mont. Dep. Fish and Game, Fed. Aid Proj. W-120-R-7, 1976) indicated that predation by coyotes on mule deer was occurring in breaks habitat along the Missouri River and may have been a major factor affecting fawn recruitment. The fact that fawn: doe ratios were low in early winter further indicated that, if predation was the cause of low recruitment, it was especially important during the winter months.

RANGE RELATIONS OF MULE DEER AND CATTLE IN PRAIRIE HABITAT

Gray, L. DEESE, Montana Department of Fish and Game, Bozeman, 3902

Abstract: A study of range use, food habits, and inter-specific relationships of mule deer (*Odocoileus hemionus*) and cattle was conducted in the prairie habitat of north-central Montana during summer and winter. Among vegetation types, the big sagebrush and grassland types, combined, received 81 and 69 percent of the use by mule deer in summer and winter, respectively. Sixty-four percent of the observations of cattle for the period June-September occurred on the silver sagebrush type compared to 31 percent in the grassland type. Both mule deer and cattle used the silver sagebrush type, which is bottom of major drainage, during late summer. Brown plants averaged 43, 81, 90, and 3 of total volume of ruminant for mule deer for summer, fall, winter, and spring, respectively. Sweetclover (*Medicago sativa*), snowberry (*Symphoricarpos* spp.), rabbitbrush (*Chrysothamnus nauseosus*), and creeping juniper (*Juniperus horizontalis*) were the most important diet for the respective seasons. Grass accounted for 67 and 85 percent, respectively, of and early fall diets of cattle as determined from the examination of feeding sites. Parks, such as sweetclover, were important during early summer. Evaluation of food habits indicated 1 cast fence competition between mule deer and cattle. Reproductive performance of the deer to verify this conclusion. An average incidence of evaluation of 3.0 and a conception rate of 5 were determined for females collected from January to April.

Ecology of the Mule Deer, *Odocoileus hemionus*, Along the East Front of the Rocky Mountains, Montana

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Montana Department of Fish, Wildlife, and Parks, Box 1455, R. 1, Libby, Montana 59623

Abstract: Mule deer, *Odocoileus hemionus*, wintering along the east slope of the Rocky Mountains from North River to Birch Creek in north-central Montana were found to represent several herd units. Distribution and movement patterns of deer in each herd unit were influenced by the topography and vegetation on winter ranges and in the mountains west of winter ranges. Each herd unit consisted of deer that were residing on one or more winter ranges, deer that summered in valleys near the winter range, and deer that moved 20 or more km to mountain summer ranges. Movement patterns and apparent vulnerability to hunting varied among segments. Depredation of mountain forest winter ranges through intensive oil and gas development could significantly reduce Mule Deer numbers in large areas of the Rocky Mountains.

Key Words: Mule Deer, *Odocoileus hemionus*, population ecology, Montana.

Mule Deer, *Odocoileus hemionus*, populations along the East Front of the Rocky Mountains represent a valuable resource that could be detrimentally affected by hydrocarbon exploration and development in the overthrust formations that underlie the mountain front in the United States and Canada. Management of Mule Deer in the face of oil and gas development requires knowledge of the distribution, seasonal movements, and other ecological attributes of populations dependent on the mountain-prairie ecotone along the East Front. This information is basically lacking for Mule Deer in the northern Rocky Mountains, whereas intensive studies involving marked and radio-collared animals and close population monitoring have been conducted

Terrans on the Sawtooth Range is characterized by a series of parallel north-south faults with moderate west-facing slopes and precipitous east faces. Elevation range from 3311 to 2863 m. A narrow (1 to 3 km) band of foothills marks the transition between plains and mountains and provides most of the wintering areas for native ungulates. Major vegetation types in the study area included fescue-grass (*Festuca* spp., *Agropyron* spp.) meadows, Lumber Pine (*Pinus latifolia*) savannas, and forest dominated by Douglas fir (*Pseudotsuga menziesii*), Alpine Fir (*Abies lasiocarpa*), or Lodgepole Pine (*Pinus contorta*). Annual precipitation recorded at weather stations near the study area averages 35 to 56 cm. Average annual temperature is about 7° C (U.S. Department of Commerce 1985). Winter snow cover is variable along the mountain front and is influenced by strong southwesterly chinook winds.

Over 90% of the total study area was administered by the United States Forest Service (USFS), U.S. Bureau of Land Management (BLM), and the Montana Department of Fish, Wildlife and Parks (MDFWP). However, more than 80% of the surface and 44% of the subsurface mineral (oil and gas) rights on Mule Deer wintering areas were privately owned or administered.

J. WILDL. MANAGE. 39(3):1975

Range relationships of mule deer have been studied in mountainous areas of western and central Montana (Morris and Schwartz 1957, Williams 1957, Lovas 1958, Nells and Ross 1969). All of these studies involved at least some habitat types dominated by coniferous forests. Mackie (1970) studied range relations of mule deer, elk (*Cervus canadensis*), and cattle in the Missouri River breaks of eastern Montana, where coniferous forests also occur. Quantitative data generally are lacking for the nontimbered, short-grass prairie habitat. This habitat type predominates throughout much of the eastern two-thirds of the state, including the Cottonwood Creek area of the Milk River breaks (Fig. 1). This area, administered largely by the U.S. Bureau of Land Management and used primarily for grazing by cattle, supports a significant

*A joint contribution from Montana State University, Agricultural Experiment Station, Project No. 408, Paper No. 412 Journal Series, and the Game Management Division, Project W-120-R-1 and 2, Montana Department of Fish and Game.

J. Wildl. Manage. 39(3):1975

Survival and Cause-Specific Mortality of Male Mule Deer Under Different Hunting Regulations in the Bridger Mountains, Montana

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Gary C. White, Department of Fish and Wildlife Biology, Colorado State University, Fort Collins, CO 80523, USA

Abstract: We selected alternate populations of male mule deer (*Odocoileus hemionus*) in the Bridger Mountains, Montana, USA, to assess effects on survival rates of mortality of hunting regulations imposed to enhance representation of mature males. We compared two hunting regimes: (1) a regulated population with a hunting season from September to February and (2) an unregulated population with a hunting season from September to February. We used a mark-recapture study to estimate survival rates of males in each population over a 3-year period. We found that survival rates of males in the regulated population were higher than those in the unregulated population. We found that survival rates of males in the regulated population were higher than those in the unregulated population. We found that survival rates of males in the regulated population were higher than those in the unregulated population. We found that survival rates of males in the regulated population were higher than those in the unregulated population.

Key Words: Survival, hunting regulations, mule deer, Montana, subsistence mortality, *Odocoileus hemionus*, population, program MAGE, subsistence, survival.

Mule deer (*Odocoileus hemionus*) populations occupy diverse environments and display dynamic changes in survival rates in response to a variety of mortality factors. Declines in Rocky Mountain mule deer populations in the 1970s (Wolman and Low 1976) and 1990s (Umowich et al. 1999) resulted in many state management agencies implementing conservative harvest strategies for adult females. Consequently, the male segment of many populations experienced increased harvest pressure because hunting regulations affecting adult male harvest did not change or restrict hunter numbers. Declining sex ratios and deteriorating opportunity for hunting mature, large-bodied males have become important public concerns since at least the mid-1980s (Wingard and Mackie 1987). Given the scope of this management issue throughout the western United States, greater emphasis needs to be placed on understanding survival of male deer and causes of mortality under a variety of hunting regulations.

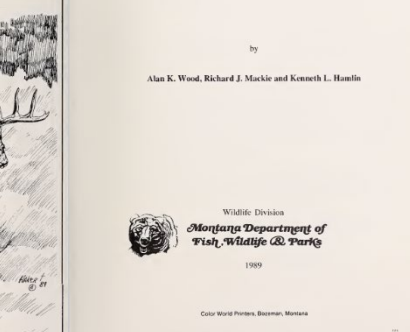
Previous research on mule deer survival has emphasized fawn and adult female survival rates and their relationships to population growth in the northern Rocky Mountains and Intermountain West (Hamlin et al. 1984, White et al. 1987, Burrows et al. 1992, Callahan et al. 1998, Umowich et al. 1999). However, survival and cause-specific mortality data

employing radio-telemetry for male mule deer is limited to the eastern Sierra Nevada, California, USA (Beck and Taylor 1978), and desert habitats in the Trans-Pecos region of Texas, USA (Harmon et al. 2004). Borden et al. (2004) reported survival rates and mortality causes for adult male Columbia black-tailed deer (*O. columbianus*) in western Washington, USA.

During the mid-1980s, hunters and landowners in Montana, USA, requested management action to enhance representation of mature males in some mule deer populations. We selected 2 adjacent populations in the Bridger Mountains with a history of studies of mule deer population ecology (Pac et al. 1991, Mackie et al. 1994, Umowich et al. 1999) to measure effects on male survival rates and causes of mortality of 2 different hunting regulations designed to enhance representation of mature males. We compared survival between the West Slope and South 18 Mile populations considering both hunting and nonhunting sources of mortality with respect to age (fawn, yearling, and mature), month (Jan-May), and year (1990-1995).

ECOLOGY OF SYMPATRIC POPULATIONS OF MULE DEER AND WHITE-TAILED DEER IN A PRAIRIE ENVIRONMENT

Alan K. Wood, Richard J. Mackie and Kenneth L. Hamlin

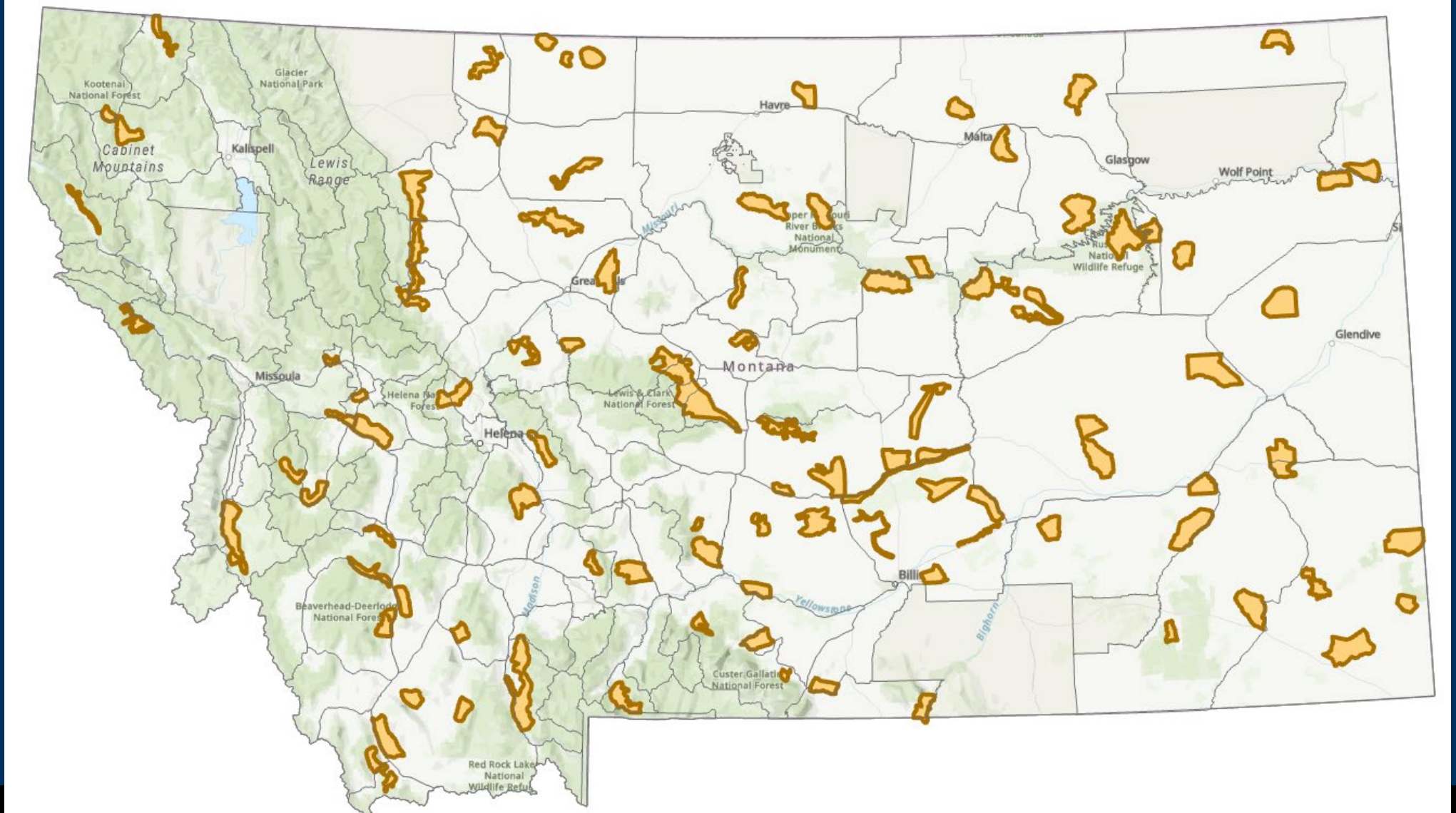


Wildlife Division
Montana Department of
Fish, Wildlife & Parks
1989



Monitoring = aerial surveys + harvest

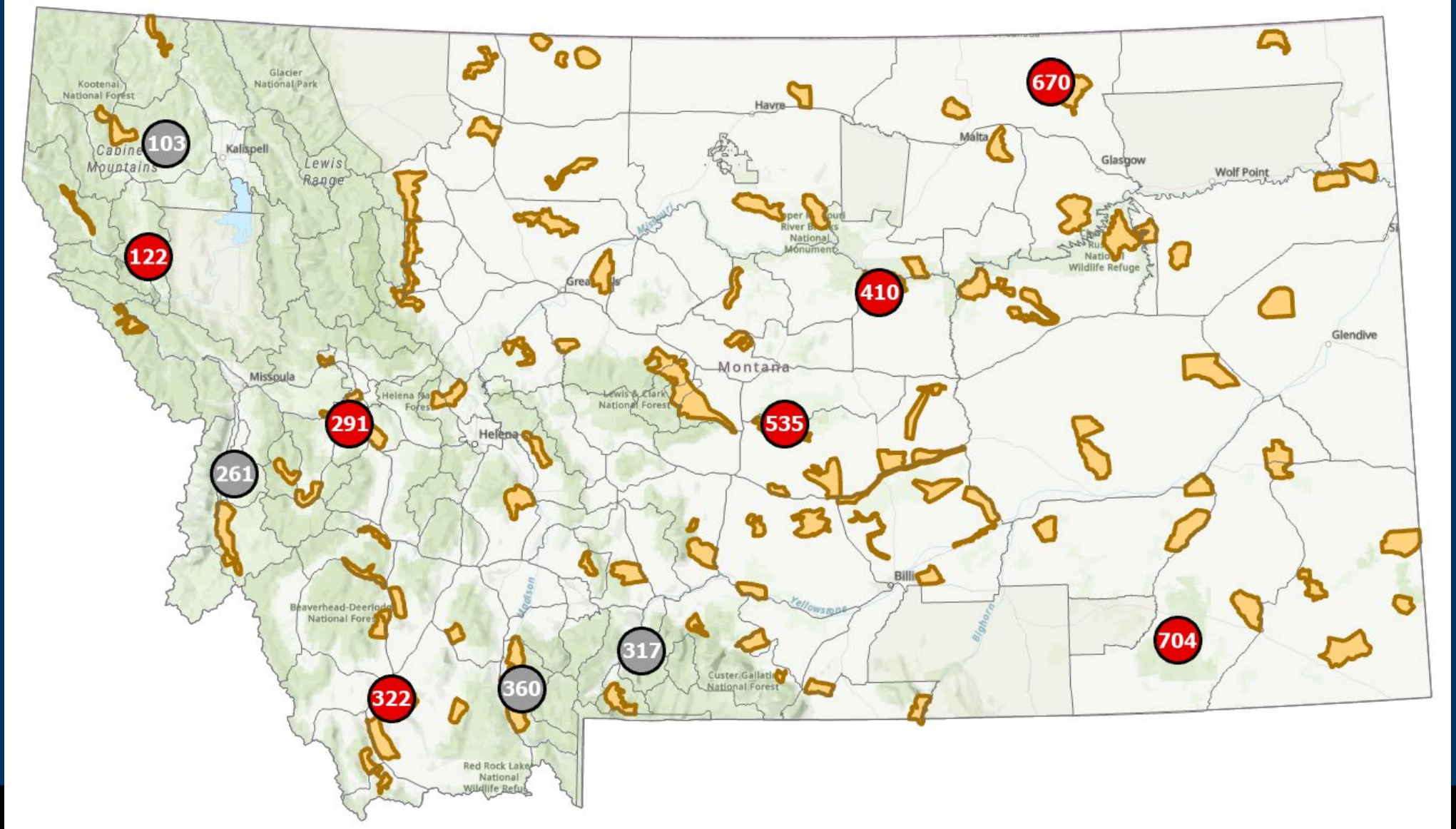
*Info on
WHAT is
happening



Monitoring = aerial surveys + harvest + collars

*Info on **WHAT** is happening

*Adds info about **WHY**



Monitoring = aerial surveys + harvest + collars

*Info on **WHAT** is happening

*Adds info about **WHY**

*Mirroring work going on in neighboring states (CO, ID, UT, WY)

*Response to both internal and external (CAC) requests for new investments to bring best available data to management



5-year study, starting FY27, 'collar-based monitoring'



Shawn Stewart



5-year study, starting FY27, 'collar-based monitoring'

- * Mix of long-term and short-term study areas
- * Does, bucks & fawns
- * Working with biologists from all 7 regions + UM/MSU
- * Range of conditions
 - predation, nutrition
 - CWD, status/trend



5-year study, starting FY27, 'collar-based monitoring'



Shawn Stewart

New data for deer management

- Annual and winter survival rates by age-sex
- Causes of mortality by age-sex
- Nutritional plane (fawn weights, rump fat)
- Weather indices (drought, winter severity)
- Seasonal movement and migration
- Validation/update to current monitoring and management paradigm



From research to management

*Still work to do regarding incorporation of new data and tools into management actions

*Intent to continue this work beyond 5-year research project



Collaboration

- * Opportunity for partnership with MDF, others
- * Public-facing
- * Will be a big lift



Thank you

