

**COLORADO PARKS AND WILDLIFE
GIS SPECIES ACTIVITY MAPPING DEFINITIONS
PUBLICLY AVAILABLE DATA**

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Species Activity Mapping (SAM)
ABERT'S SQUIRREL
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses the observed range of a population of Abert's Squirrel.

Species Activity Mapping (SAM)
AMPHIBIANS
Seasonal Activity Area Definitions

HUC 12 PRESENCE: Depicts the Hydrologic Unit Code (HUC) 12 boundaries where populations of amphibians are known to occur in Colorado based on occurrences since 1970 aggregated at the HUC12 level.

SPECIES: Blanchard's (Northern) Cricket Frog, Canyon Tree Frog, Couch's Spadefoot, Great Basin Spadefoot, Great Plains (Western) Narrow-mouthed Toad, Northern Leopard Frog, Plains Leopard Frog, Western Green Toad, and Wood Frog.

Species Activity Mapping (SAM)
BALD EAGLE
Activity Area Definitions

NEST SITES: Known nest sites for Bald Eagles in Colorado. Nests may be classified as active, inactive, destroyed, undetermined, or unknown

Active: A specific location in which a pair of Bald Eagles have at least attempted to nest within the last five years. Any nest location that can be directly tied to courtship, breeding, or brooding behavior is considered active. A buffer zone extends .5 miles around a known active nest.

Inactive: A former active nest location in which neither courtship, breeding, or brooding activity has been observed at any time during the last 5 years. A buffer zone of .5 mile extends around an inactive nest.

Destroyed: A Bald Eagle nest whose last recorded status noted that the nest was destroyed. A buffer zone of .5 mile extends around a destroyed nest.

Undetermined: A Bald Eagle nest that has been monitored within the last five years, but the status could not be determined. A buffer zone of .5 mile extends around an undetermined nest.

Unknown: A former active Bald Eagle nest that has not been checked in the past five years. A buffer zone of .5 mile extends around an unknown nest.

ROOST SITE: Groups of or individual trees that provide diurnal and/or nocturnal perches for less than 15 wintering bald eagles; includes a buffer zone extending 1/4 mile around these sites. These trees are usually the tallest available trees in the wintering area and are primarily located in riparian habitats.

COMMUNAL ROOST: Groups of or individual trees that provide diurnal and/or nocturnal perches

for more than 15 wintering bald eagles; these trees are usually the tallest available trees in the wintering area.

WINTER RANGE: Those areas where bald eagles have been observed between November 15 and April 1.

WINTER CONCENTRATION AREA: Areas (tree, islands, etc) within an existing winter range where eagles concentrate between November 15 and April 1. These areas may be associated with roost sites.

WINTER FORAGING RANGE: Foraging areas frequented by wintering bald eagles between November 15 and March 15. May be a large area radiating from preferred roosting sites. In western Colorado preferred roosting sites are within dominant riparian zones.

SUMMER FORAGING RANGE: Foraging areas frequented by breeding bald eagles from March 15 to July 31. These areas are almost always associated with nesting pairs.

Species Activity Mapping (SAM)

BATS

Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses the observed and predicted range of a population of bats.

SPECIES: Allen's Big-eared Bat, Big Brown Bat, Big Free-tailed Bat, Brazilian Free-tailed Bat, California Myotis, Canyon Bat, Fringed Myotis, Hoary Bat, Little Brown Myotis, Long-eared Myotis, Long-legged Myotis, Pallid Bat, Red Bat, Silver-haired Bat, Spotted Bat, Townsend's Big-eared Bat, Tri-colored Bat, Western Small-footed Myotis, and Yuma Myotis.

Species Activity Mapping (SAM)

BIGHORN SHEEP

Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a bighorn sheep population.

SUMMER RANGE: That part of the overall range where 90% of the individuals are located between spring green-up and the first heavy snowfall. Summer range is not necessarily exclusive of winter range; in some areas winter range and summer range may overlap.

SUMMER CONCENTRATION AREA: Those areas where bighorn sheep concentrate from mid-June through mid-August. High quality forage, security, and lack of disturbance may be

characteristic of these areas to meet the high energy demands of lactation, lamb rearing, horn growth, and general preparation for the rigors of fall and winter.

PRODUCTION AREA: That part of the overall range of bighorn sheep occupied by pregnant females during a specific period of spring. This period is May 1 to June 30 for Rocky Mountain bighorn sheep and February 28 to May 1 for desert bighorn sheep.

WINTER RANGE: That part of the overall range where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each DAU.

WINTER CONCENTRATION AREA: That part of the winter range where densities are at least 200% greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten.

SEVERE WINTER RANGE: That part of the winter range where 90% of the individual animals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. Not all populations exhibit migratory behavior during severe winters, many will stay within the defined winter range regardless of conditions. Thus, some populations may not have a mapped severe winter range distribution.

MIGRATION PATTERN: A subjective indication of the general direction of the movements of migratory ungulate herds.

MIGRATION CORRIDOR: A specific mappable site through which large numbers of animals migrate and loss of which would change migration routes.

MINERAL LICK: Specific natural sites known to be utilized by bighorn sheep for obtaining minerals to meet basic nutritional needs.

WATER SOURCE: Water sources known to be utilized by bighorn sheep in dry, water scarce areas. Up to a 1.6 km radius should be described around a point source, and up to a 1.6 km band be drawn along a river or stream and clipped to Overall Range.

Species Activity Mapping (SAM)

BIRDS

Seasonal Activity Area Definitions

BREEDING RANGE: The area which encompasses the geographic area in which a population of birds can typically be found breeding (the period of time during each year when a species reproduces - mates and has young) in Colorado.

OVERALL RANGE: The area which encompasses the observed range of a population of birds.

WINTER RANGE: The area which encompasses the observed winter range of a population of birds.

MIGRATION RANGE: The area which encompasses the geographic area in which a population of birds can typically be found while seasonally moving between their winter range and their breeding range.

SPECIES: American Bittern, Band-tailed Pigeon, Barrow's Goldeneye, Black Rosy Finch, Black Swift, Black Tern, Bobolink, Brewer's Sparrow, Brown-capped Rosy Finch, Burrowing Owl, Cassin's Finch, Cassin's Sparrow, Chestnut-collared Longspur, Ferruginous Hawk, Golden Eagle, Grace's Warbler, Grasshopper Sparrow, Gray Vireo, Juniper Titmouse, Lark Bunting, Lazuli Bunting, Least Tern, Lewis's Woodpecker, Long-billed Curlew, McCown's Longspur, Mountain Plover, Northern Bobwhite, Northern Goshawk, Northern Harrier, Olive-sided Flycatcher, Pinyon Jay, Piping Plover, Prairie Falcon, Purple Martin, Rufous Hummingbird, Sage Sparrow, Swainson's Hawk, Upland Sandpiper, Veery, Virginia Warbler, Western Snowy Plover, and White-faced Ibis.

Species Activity Mapping (SAM)
BLACK BEAR
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of black bear.

SUMMER CONCENTRATION AREA: That portion of the overall range of the species where activity is greater than the surrounding overall range during that period from June 15 to August 15.

FALL CONCENTRATION AREA: That portion of the overall range occupied from August 15 until September 30 for the purpose of ingesting large quantities of mast and berries to establish fat reserves for the winter hibernation period.

HUMAN/BEAR CONFLICT AREA: That portion of the overall range where two or more confirmed black bear complaints per season were received which resulted in CPW investigation, damage to persons or property (cabins, tents, vehicles, etc), and/or the removal of the problem bear(s). This does not include damage caused by bears to livestock.

Species Activity Mapping (SAM)
BLACK-FOOTED FERRET
Seasonal Activity Area Definitions

RELEASE SITES: Areas showing reintroduction release sites of Black-Footed Ferrets in Colorado

since 2001. Releases on public lands are depicted by the administrative boundary of the property ferrets were released. Due to state statutory requirements and agreements made with individual landowners to protect their privacy, release sites occurring on private land have been generalized to the county in which they occurred. Ferrets will not be found within all areas of these boundaries and will only likely occur in areas with active prairie dog colonies.

Species Activity Mapping (SAM)
BLACK-TAILED PRAIRIE DOG
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activity areas within the range of a population of prairie dogs.

COLONY POTENTIAL OCCURRENCE: Depicts the probability of black-tailed prairie dog colonies occurring within the Overall Range within Colorado. CPW staff delineated and categorized these areas of potential occurrence based on the results of a 2016 rangewide survey (see [Howlin, S., J. Mitchell. December 2016. Monitoring Black-Tailed Prairie Dogs in Colorado with the 2015 NAIP Imagery.](#))

H - High Colony Potential Occurrence. 2016 survey indicated a large number of colonies and/or individual colonies of substantially larger size. These areas have a higher likelihood of containing a larger number of colonies and/or large individual colonies.

M - Medium Colony Potential Occurrence. 2016 survey indicated a moderate number of colonies of small to intermediate size. These areas have a medium likelihood of containing colonies of small to intermediate size.

L - Low Colony Potential Occurrence. 2016 survey indicated a low number of colonies of small to intermediate size. These areas have a lower likelihood of containing colonies of small to intermediate size.

PRAIRIE DOG HABITAT AFFINITIES:

Black-Tailed Prairie Dog: An area typically associated with shortgrass or mixed-grass prairie in eastern Colorado.

Species Activity Mapping (SAM)
BOBWHITE QUAIL
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of bobwhite quail.

CONCENTRATION AREA: Areas within overall range where densities of bobwhite quail are much higher than surrounding ranges.

Species Activity Mapping (SAM)
BOREAL TOAD
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of boreal toads.

Species Activity Mapping (SAM)
BOTTA'S POCKET GOPHER
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Botta's Pocket Gopher in Colorado. Botta's Pocket Gopher is primarily associated with perennial meadows, and grass and forb stages of most riparian-deciduous and conifer forests. Less common in mature stages of forest habitats.

Species Activity Mapping (SAM)
COLUMBIAN SHARP-TAILED GROUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all mapped seasonal activity areas within the observed range of a population of Columbian Sharp-tailed Grouse.

WINTER RANGE: Observed winter range of Columbian Sharp-tailed Grouse usually in a tall shrub vegetative type (greater than or equal to 2 meters); within 5 km of lek sites. Shrub height should allow feeding on buds by birds above normal snow depths.

PRODUCTION AREA: An area that include 90% of Columbian sharp-tailed Grouse nesting or brood rearing habitat. This is mapped as a buffer zone of 1.25 miles around active dancing grounds and clipped to Overall Range.

Species Activity Mapping (SAM)
DWARF SHREW
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Dwarf Shrew in Colorado.

Dwarf Shrew is primarily associated with mountain habitats, mostly reported in rocky habitats in the alpine tundra and subalpine coniferous forests but also found in dry brushy slopes in Colorado around 1,670 m.

Species Activity Mapping (SAM)

ELK

Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of an elk population.

WINTER RANGE: That part of the overall range of a species where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each DAU. Winter range is not delineated for elk on the Eastern Plains.

WINTER CONCENTRATION AREA: That part of the winter range of elk where densities are at least 200% greater than the surrounding winter range density during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each Data Analysis Unit.

SEVERE WINTER RANGE: That part of the range of a species where 90 percent of the individuals are located when the annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. The winter of 1983-84 is a good example of a severe winter.

HIGHWAY CROSSING: Those areas where elk movements traditionally cross roads, presenting potential conflicts between elk and motorists.

MIGRATION CORRIDOR: A specific mappable site through which large numbers of animals migrate and loss of which would change migration routes.

MIGRATION PATTERN: A subjective indication of the general direction of the movements of migratory ungulate herds.

PRODUCTION AREA: That part of the overall range of elk occupied by the females from May 15 to June 15 for calving. (Only known areas are mapped and this does not include all production areas for the DAU).

RESIDENT POPULATION AREA: An area used year-round by a population of elk. Individuals could be found in any part of the area at any time of the year; the area cannot be subdivided into seasonal ranges. It is most likely included within the overall range of the larger population.

SUMMER RANGE: That part of the range of a species where 90% of the individuals are located between spring green-up and the first heavy snowfall, or during a site specific period of summer as defined for each DAU. Summer range is not necessarily exclusive of winter range; in some areas winter range and summer range may overlap.

SUMMER CONCENTRATION AREA: Those areas where elk concentrate from mid-June through mid-August. High quality forage, security, and lack of disturbance are characteristics of these areas to meet the high energy demands of lactation, calf rearing, antler growth, and general preparation for the rigors of fall and winter.

LIMITED USE AREA: An area within the overall range which is occasionally inhabited by elk and/or contains a small scattered population of elk.

Species Activity Mapping (SAM)

FISH

Seasonal Activity Area Definitions

HUC 12 PRESENCE: Depicts the Hydrologic Unit Code (HUC) 12 boundaries where populations of fish are known to occur in Colorado based on occurrences between Jan. 2008 and Dec. 2017 aggregated at the HUC12 level.

SPECIES: Arkansas Darter, Bluehead Sucker, Bonytail, Brassy Minnow, Colorado Pikeminnow, Common Shiner, Cutthroat Trout, Flannelmouth Sucker, Flathead Chub, Humpback Chub, Iowa Darter, Lake Chub, Mountain Sucker, Northern Redbelly Dace, Orange-spotted Sunfish, Orangethroat Darter, Plains Minnow, Plains Topminnow, Razorback Sucker, Rio Grande Chub, Rio Grande Sucker, Roundtail Chub, Southern Redbelly Dace, Stonecat, and Suckermouth Minnow.

Species Activity Mapping (SAM)

GEESE

Seasonal Activity Area Definitions

CANADA GEESE WINTER RANGE: That part of the overall range occupied by Canada geese from November 1 to March 1. Includes winter loafing/resting and foraging areas.

CANADA GEESE WINTER CONCENTRATION AREA: That part of the winter range occupied by loafing/resting Canada geese where densities are significantly greater than the surrounding winter range density. Generally, an extensive area of open water such as large reservoirs, rivers, and sloughs that are relatively ice free and free from human disturbance.

CANADA GEESE FORAGING AREA: That portion of the winter range where Canada geese move to feed, such as agricultural fields or reservoir shorelines.

CANADA GEESE PRODUCTION AREA: That part of the overall range used by nesting and brooding Canada geese.

CANADA GEESE BROOD CONCENTRATION AREA: Brood areas, within production areas, where Canada geese traditionally congregate in high numbers.

CANADA GEESE MOLTING AREA: Areas of water used primarily by non-breeding birds, that cannot positively be assigned as originating from specific nesting areas during molt.

SNOW GEESE WINTER RANGE: That part of the overall range occupied by Snow geese from November 1 to March 1. Includes winter loafing/resting and foraging areas.

Species Activity Mapping (SAM)
GREAT BLUE HERON
Seasonal Activity Area Definitions

NESTING AREA (ROOKERY): Groups of or individual trees containing nest platforms and a buffer zone extending 500 meters around a known active or inactive nest site. Nest platforms are usually located in dominant trees associated with riparian habitats. In Colorado, human activity at active sites should be restricted from March 1 to July 1.

HISTORIC NESTING AREA: A formerly active nesting area that has either been destroyed or in which no courtship, breeding, or brooding activity has been observed at any time during the past 5 years.

FORAGING AREA: Areas where great blue herons are known to feed. Appropriate habitat includes shallow water areas associated with reservoirs, lakes, ponds, streams, and backwater areas of major rivers with abundant fish populations. On large irrigation reservoirs, these areas will fluctuate with changing water levels.

Species Activity Mapping (SAM)
GREATER PRAIRIE CHICKEN
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activities within the observed range of the greater prairie chicken. Does not include historic range.

HISTORIC RANGE: Areas where greater prairie chickens have been known to occur prior to 1955. Taken from Aldrich and Duvall (1955).

PRODUCTION AREA: An area which includes all nesting and brood rearing habitat of the greater prairie chicken. Currently defined as a 2.2 mile buffer zone around each active lek and clipped

to Overall Range.

Species Activity Mapping (SAM)
GREATER SAGE GROUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all mapped seasonal activity areas within the observed range of a population of sage grouse.

WINTER RANGE: Observed winter range.

SEVERE WINTER RANGE: That part of the winter range where 90 percent of the individuals are located when annual snow pack is at its' maximum and/or temperatures are at a minimum in the two worst winters out of ten. The winters of 1983-84, or 96-97 are good examples.

BROOD AREA: Areas supporting sage grouse broods. This generally includes wet areas such as meadows, springs, ponds and streams which all function as important brood rearing sites. To be mapped as a 200 m (.124 mile) buffer zone around the edges of such wet sites.

PRODUCTION (NESTING) AREA: An area that would include the majority of important sage grouse nesting habitat. Mapped as a buffer zone of 4 miles around Active leks and clipped to Overall Range.

HISTORIC HABITAT: The data set was created by mapping efforts of the Colorado Parks and Wildlife biologists for the Statewide conservation plan in 2005. This dataset was based on the historic grouse range delineated by Schroeder et al 2004 and was further refined by biologists in the Colorado Statewide Greater Sage Grouse Conservation Plan Committee.

LINKAGES: Greater sage grouse GIS dataset identifying linkage areas between sage grouse populations. The data set was created by mapping efforts of the Colorado Division of Wildlife (now Colorado Parks and Wildlife) biologists for the Statewide conservation plan in 2005, and further refined in early 2012. The linkage areas were delineated based on a selection of vegetation classes in the Colorado Basin-wide dataset. The following list shows the vegetation classes used to assist the biologists in delineating the areas. Linkages Vegetation Classes Determined by Pam Schnurr and Brad Petch on 11/20/2005 from Basinwide Vegetation classes Agriculture Land Bitterbrush Community Bitterbrush/Grass Mix Disturbed Rangeland Disturbed Soil Dryland Ag Foothill and Mountain Grasses Forb Dominated Grass Dominated Grass/Forb Mix Grass/Forb Rangeland Grass/Misc. Cactus Mix Grass/Yucca Mix Greasewood Irrigated Ag Juniper/Mtn Shrub Mix Juniper/Sagebrush Mix Mesic Mountain Shrub Mix PJ-Mtn Shrub Mix PJ-Oak Mix PJ-Sagebrush Mix Rabbitbrush/Grass Mix Rangeland Sagebrush Community Sagebrush/Gambel Oak Mix Sagebrush/Grass Mix Sagebrush/Greasewood Sagebrush/Mesic Mtn Shrub Mix Sagebrush/Rabbitbrush Mix Salt Desert Shrub Community Saltbrush Community Serviceberry/Shrub Mix Shrub/Brush Rangeland Shrub/Brush/Forb Mix Snowberry

Snowberry/Shrub Mix Sparse Juniper/Shrub/Rock Mix Sparse PJ/Shrub/Rock Mix Winterfat/Grass Mix Xeric Mountain Shrub Mix Update: In August 2012, this dataset was modified to correct topology errors between the Linkages dataset and the PPH and PGH dataset.

PRIORITY HABITAT (PH) / GENERAL HABITAT (GH): Greater sage-grouse GIS data set identifying Priority Habitat (PH) and General Habitat (GH) within Colorado. This data is a combination of mapped grouse occupied range, production areas, and modeled habitat (summer, winter, and breeding).

PH is defined as areas of high probability of use (summer or winter, or breeding models) within a 4 mile buffer around leks that have been active within the last 10 years. Isolated areas with low activity were designated as general habitat.

GH is defined as Greater sage-grouse Occupied Range outside of PH.

Datasets used to create PH and GH: Summer, winter, and breeding habitat models. Rice, M. B., T. D. Apa, B. L. Walker, M. L. Phillips, J. H. Gammonly, B. Petch, and K. Eichhoff. 2012. Analysis of regional species distribution models based on combined radio-telemetry datasets from multiple small-scale studies. Journal of Applied Ecology in review.

Production Areas are defined as 4 mile buffers around leks which have been active within the last 10 years (leks active between 2002-2011).

Occupied range was created by mapping efforts of the Colorado Division of Wildlife (now Colorado Parks and Wildlife - CPW) biologists and district officers during the spring of 2004, and further refined in early 2012. Occupied Habitat is defined as areas of suitable habitat known to be used by sage-grouse within the last 10 years from the date of mapping. Areas of suitable habitat contiguous with areas of known use, which do not have effective barriers to sage-grouse movement from known use areas, are mapped as occupied habitat unless specific information exists that documents the lack of sage-grouse use. Mapped from any combination of telemetry locations, sightings of sage grouse or sage grouse sign, local biological expertise, GIS analysis, or other data sources. This information was derived from field personnel. A variety of data capture techniques were used including the SmartBoard Interactive Whiteboard using stand-up, real-time digitizing at various scales (Cowardin, M., M. Flenner. March 2003. Maximizing Mapping Resources. GeoWorld 16(3):32-35).

Update: In August 2012, this dataset was modified to correct topology errors and clipped to the Colorado boundary.

Species Activity Mapping (SAM)
GUNNISON'S PRAIRIE DOG
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activity areas within the range of a population of prairie dogs.

PRAIRIE DOG HABITAT AFFINITIES:

Gunnison's Prairie Dog: An area, typically associated with grasslands and semi desert montane shrublands in southwestern and south-central Colorado.

Species Activity Mapping (SAM)
GUNNISON'S SAGE GROUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all mapped seasonal activity areas within the observed range of a population of sage grouse.

WINTER RANGE: Observed winter range.

SEVERE WINTER RANGE: That part of the winter range where 90 percent of the individuals are located when annual snow pack is at its' maximum and/or temperatures are at a minimum in the two worst winters out of ten. The winters of 1983-84, or 96-97 are good examples.

BROOD AREA: Areas supporting sage grouse broods. This generally includes wet areas such as meadows, springs, ponds and streams which all function as important brood rearing sites. To be mapped as a 200m (.124 mile) buffer zone around the edges of such wet sites.

PRODUCTION (NESTING) AREA: An area that would include the majority of important sage grouse nesting habitat. Mapped as a buffer zone of 4 miles around Active leks. As of 9/8/2016 these buffer zones are no longer clipped to Overall Range per directive from Jon Holst, CPW Energy Resource Specialist - SW Region.

HISTORIC HABITAT: The original sage-grouse historic range was delineated by Schroeder et. al. 2004 and was further refined by CPW personnel and the Range-wide Conservation Plan Committee for the Gunnison Sage-grouse Range-wide Conservation Plan - 2004. The Comments field labels the areas the Committee considered uncertain grouse species.

OCCUPIED HABITAT: Areas of suitable habitat known to be used by sage-grouse within the last 10 years from the date of mapping. Areas of suitable habitat contiguous with areas of known use, which do not have effective barriers to sage-grouse movement from known use areas, are mapped as occupied habitat unless specific information exists that documents the lack of sage-grouse use. Mapped from any combination of telemetry locations, sightings of sage grouse or sage grouse sign, local biological expertise, GIS analysis, or other data sources.

Species Activity Mapping (SAM)
INTERIOR LEAST TERN
Seasonal Activity Area Definitions

PRODUCTION AREA: An area that includes nesting habitat and contains one or more active or

previously active and aggressively defended territories.

FORAGING AREA: An area which generally is associated with a nesting area and which provides a source of food for Least Terns. Appropriate habitat includes shallow water areas in lakes, ponds, and river backwater areas with abundant small fish populations. These areas generally are within one-half mile of the nesting area. On large irrigation reservoirs, these areas fluctuate with changing water levels.

Species Activity Mapping (SAM)
KIT FOX
Seasonal Activity Area Definitions

HISTORIC OVERALL RANGE: Areas known to have been utilized by kit fox in Colorado. Kit Fox were last observed in Colorado in the 1990's.

Species Activity Mapping (SAM)
LESSER PRAIRIE CHICKEN
Seasonal Activity Area Definitions

ESTIMATED OCCUPIED RANGE (EOR): An area which encompasses all known seasonal activities within the observed range of the lesser prairie chicken. This does not include historic range. The purpose of this layer is to indicate suitable range within Colorado for the Lesser Prairie Chicken based on suitable habitat present.

HISTORIC RANGE: Areas where lesser prairie chickens have been known to occur prior to 1955. Taken from Aldrich and Duvall (1955).

PRODUCTION AREAS: An area which includes all nesting and brood rearing habitat of the lesser prairie chicken. Currently defined as a 2.2 mile buffer zone around each active lek and clipped to LPChickenOverallRange.

CHAT PRIORITY AREAS: Mapped polygons designating high priority habitat, both focal areas (CHAT 1) and connectivity areas (CHAT 2) as defined in the Lesser Prairie Chicken Rangewide Plan.

Species Activity Mapping (SAM)
LYNX
Seasonal Activity Area Definitions

POTENTIAL HABITAT: Areas having the highest potential of lynx occurrences in the state. These areas usually contain positive, probable, or possible reports. This information was derived

from modeling potential lynx habitat.

Species Activity Mapping (SAM)
MOOSE
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of moose.

WINTER RANGE: That part of the overall range where 90 percent of the individuals are located during the winter months. This winter time frame will be delineated with specific start/end dates for each moose population within the state (ex: November 15 to April 1).

SUMMER RANGE: That part of the overall range where 90% of the individuals are located during the summer months. This summer time frame will be delineated with specific start/end dates for each moose population within the state (ex: May 1 to Sept 15). Summer range is not necessarily exclusive of winter range.

CONCENTRATION AREA: That part of the range of a species where densities are 200% higher than the surrounding area during a specific season.

MIGRATION PATTERN: A subjective indication of the general direction of the movements of moose.

PRIORITY HABITAT: Habitat types associated with the food and cover requirements of moose. Significant loss of these habitats would change moose distribution and/or would adversely affect the population. These habitat types include but are not limited to willow dominated riparian areas, sub-climax coniferous forest mixed with shrub lands, and dense climax coniferous forests.

Species Activity Mapping (SAM)
MOUNTAIN GOAT
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activity areas within the observed range of a population of mountain goat.

WINTER RANGE: That part of the overall range of a species where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each management unit.

SUMMER RANGE: That part of the home range of a species where 90 percent of the individuals

are located during summer. This range may overlap winter range areas in some instances. Summer range will include what has traditionally been known as spring and fall transitional ranges.

PRODUCTION AREA: That part of the home range of a species occupied by the females during a specific period of spring. This period is May 15 to June 30 for mountain goats.

CONCENTRATION AREAS: That part of the overall range where densities are at least 200% greater than the surrounding area.

MINERAL LICK: Specific natural sites known to be utilized as lick areas by mountain goat.

MIGRATION CORRIDOR: A specific mappable site through which large numbers of animals migrate and loss of which would change migration routes.

Species Activity Mapping (SAM)
MOUNTAIN LION
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of mountain lion.

PERIPHERAL RANGE: An area of mountain lion overall range where habitat is limited and populations are isolated. Population density may be lower than in the central part of their range.

HUMAN CONFLICT AREA: An area where a mountain lion has been involved in an incident (conflict with a human that may have serious results), an attack on a human, predation on domestic pets, or depredation on livestock held within close proximity to human habitation.

Species Activity Mapping (SAM)
MULE DEER
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a mule deer population.

SUMMER RANGE: That part of the overall range where 90% of the individuals are located between spring green-up and the first heavy snowfall. Summer range is not necessarily exclusive of winter range; in some areas winter range and summer range may overlap.

CONCENTRATION AREA: That part of the overall range where higher quality habitat supports

significantly higher densities than surrounding areas. These areas are typically occupied year round and are not necessarily associated with a specific season. Includes rough break country, riparian areas, small drainages, and large areas of irrigated cropland.

WINTER RANGE: That part of the overall range where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each DAU. Winter range is only delineated for migratory populations. On the Eastern Plains winter range is defined as areas that provide thermal cover for deer. Examples are riparian areas dominated by trees and shrubs, areas of pinyon/juniper, topographic cover such as gullies, draws, canyons, shelter belts and CRP fields that provide adequate cover.

WINTER CONCENTRATION AREA: That part of the winter range where densities are at least 200% greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten.

SEVERE WINTER RANGE: That part of the overall range where 90% of the individuals are located when the annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten.

RESIDENT POPULATION AREA: An area that provides year-round range for a population of mule deer. The resident mule deer use all of the area all year; it cannot be subdivided into seasonal ranges although it may be included within the overall range of the larger population.

LIMITED USE AREA: An area within the overall range of mule deer that is only occasionally inhabited and/or contains only a small population of scattered mule deer.

MIGRATION PATTERN: A subjective indication of the general direction of the movements of migratory ungulate herds.

MIGRATION CORRIDOR: A specific mappable site through which large numbers of animals migrate and loss of which would change migration routes.

HIGHWAY CROSSING: Those areas where mule deer movements traditionally cross roads or railroads, presenting potential conflicts between mule deer and motorists/trains. (More than six highway mortalities per mile of highway or railroad per year is a guide that may be used to indicate highway crossings).

Species Activity Mapping (SAM)
NEW MEXICO MEADOW JUMPING MOUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of New Mexico Meadow Jumping Mouse in Colorado. New Mexico Meadow Jumping Mouse is primarily associated with riparian corridors of small intermittent and perennial streams where riparian herbaceous and riparian shrub (primarily willow) dominate.

Species Activity Mapping (SAM)
OLIVE-BACKED POCKET MOUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Olive-backed Pocket Mouse in Colorado. Olive-backed Pocket Mouse is primarily associated with grassland in arid and semi-arid upland areas, usually with sparse vegetation and sometimes with scattered trees such as the aspen or cottonwood (*Populus* sp.) and plants such as the fringed sagebrush (*Artemisia frigida*). Its burrows are found in both sandy and clayey soils.

Species Activity Mapping (SAM)
OSPREY
Seasonal Activity Area Definitions

NEST SITES: Known nest sites for Ospreys in Colorado. Nests may be classified as active, inactive, destroyed, undetermined, or unknown

Active: A specific location in which a pair of Ospreys have at least attempted to nest within the last five years. Any nest location that can be directly tied to courtship, breeding, or brooding behavior is considered active. A buffer zone extends .5 miles around a known active nest.

Inactive: A former active nest location in which neither courtship, breeding, or brooding activity has been observed at any time during the last 5 years. A buffer zone of .5 mile extends around an inactive nest.

Destroyed: An Osprey nest whose last recorded status noted that the nest was destroyed. A buffer zone of .5 mile extends around a destroyed nest.

Undetermined: An Osprey nest that has been monitored within the last five years, but the status could not be determined. A buffer zone of .5 mile extends around an undetermined nest.

Unknown: A former active Osprey nest that has not been checked in the past five years. A buffer zone of .5 mile extends around an unknown nest.

FORAGING AREA: Open water areas, typically associated with larger rivers, lakes, and reservoirs with abundant fish populations, utilized by both resident and transient osprey for feeding purposes.

Species Activity Mapping (SAM)
PEREGRINE FALCON
Seasonal Activity Area Definitions

NESTING AREA: An area which includes good nesting sites and contains one or more active nest locations. The boundaries are drawn based on professional judgment to include most known nesting habitat in the vicinity. Usually these areas are mapped as polygons around cliffs and include a 0.5 mile buffer surrounding the cliffs.

POTENTIAL NESTING AREA: An area which appears to include the necessary components for peregrine falcon nesting, but in which no known active nest sites are present.

Species Activity Mapping (SAM)
PIKA
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of American Pika in Colorado. American Pika is primarily associated with talus and rockpiles near fields fringed by suitable vegetation in alpine and subalpine mountain areas.

Species Activity Mapping (SAM)
PIPING PLOVER
Seasonal Activity Area Definitions

PRODUCTION AREA: An area that includes nesting habitat and contains one or more active or previously active and aggressively defended territories.

FORAGING AREA: An area generally associated with a nesting area and which provides a source of food for Piping Plovers. Appropriate habitat includes shallow water areas along exposed beach substrates associated with lakes, ponds, and beaches, and dry, barren sandbars along backwater river areas which provide abundant macro invertebrate and insect populations. These areas fluctuate with changing water levels on large irrigation reservoirs.

Species Activity Mapping (SAM)
PLAINS SHARP-TAILED GROUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all mapped seasonal activity areas within the observed range of a population of plains sharp-tailed grouse.

PRODUCTION AREA: An area that includes 90% of sharp-tailed grouse nesting and brood rearing habitat. This is mapped as a buffer zone of 1.25 miles around active dancing grounds and clipped to Overall Range.

Species Activity Mapping (SAM)
PREBLE'S MEADOW JUMPING MOUSE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Preble's Meadow Jumping Mouse along the Front Range of Colorado below 7600' elevation eastward to include those hydrounits identified by the Preble's Technical Working Group. Preble's Meadow Jumping Mouse is primarily associated with riparian corridors of small intermittent and perennial streams where riparian herbaceous and riparian shrub (primarily willow) dominate.

Species Activity Mapping (SAM)
PRONGHORN ANTELOPE
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of pronghorn antelope.

WINTER RANGE: That part of the overall range where 90 percent of the individuals are located between the first heavy snowfall and spring green-up during the average five winters out of ten OR for a site specific period defined by CPW personnel for that DAU. Winter range is only delineated for migratory populations. On the Eastern Plains winter range is defined as specific areas where pronghorn are known to migrate to on a consistent basis.

WINTER CONCENTRATION AREA: That part of the winter range where animal densities are at least 200% greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten.

SEVERE WINTER RANGE: That part of the winter range where 90% of the individuals are located when the annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten.

CONCENTRATION AREAS: That part of the overall range where densities are at least 200% greater than the surrounding area during a season other than winter.

MIGRATION PATTERN: A subjective indication of the general direction of the seasonal movements of pronghorn antelope.

MIGRATION CORRIDOR: A specific mappable site through which large numbers of animals migrate and the loss of which would change migration routes.

PERENNIAL WATER: Sources of water known to be important to antelope survival in late summer or other drought periods. A four-mile radius should be described around a point source and four mile band be drawn along a river or stream.

RESIDENT POPULATION AREA: An area that provides year round range for a population of pronghorns. The resident animals use all of the area all year long; it cannot be subdivided into seasonal ranges. A resident population may be found within the overall range of a larger, migratory population.

LIMITED USE AREA: An area within the overall range of pronghorn that is occasionally inhabited and/or contains a small, scattered population of antelope.

Species Activity Mapping (SAM)
PYGMY RABBIT
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Pygmy Rabbit in Colorado. Pygmy Rabbit is primarily associated with areas of tall, dense sagebrush (*Artemisia* spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. Their diet in the winter consists of up to 99 percent sagebrush. Burrows are typically found in relatively deep, loose soils of wind-borne or water-born origin. They occasionally make use of burrows abandoned by other species and as a result, may occur in areas of shallower or more compact soils that support sufficient shrub cover.

Species Activity Mapping (SAM)
PYGMY SHREW
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Pygmy Shrew in Colorado. Pygmy Shrew is primarily associated with boreal/ subalpine mosaics of dry upland forest mixed with wet forest and meadows. Within these landscapes the subspecies seems to be associated with streams and other wet areas.

Species Activity Mapping (SAM)
REPTILES
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of reptiles.

POTENTIAL HABITAT: The areas which meet environmental parameters necessary for the survival of a population of reptiles. Typically modeled based on vegetation and elevation.

SPECIES: Black-necked Gartersnake, Bullsnake, Coachwhip, Common Gartersnake, Common Kingsnake, Common Lesser Earless Lizard, Common Sagebrush Lizard, Common Side-blotched Lizard, Desert Nightsnake, Desert Spiny Lizard, Diploid Checkered Whiptail, Eastern Collared Lizard, Eastern Hog-nosed Snake, Glossy Snake, Great Plains Ratsnake, Great Plains Skink, Hernandez's Short-horned Lizard, Lined Snake, Long-nosed Leopard Lizard, Long-nosed Snake, Many-lined Skink, Massasauga, Milksnake, North American Racer, Northern Watersnake, Ornate Box Turtle, Ornate Tree Lizard, Painted Turtle, Plains Black-headed Snake, Plains Gartersnake, Plains Hog-nosed Snake, Plateau Striped Whiptail, Prairie Lizard, Prairie Rattlesnake, Ring-necked Snake, Round-tailed Horned Lizard, Six-lined Racerunner, Smith's Black-headed Snake, Smooth Greensnake, Snapping Turtle, Spiny Softshell, Striped Whipsnake, Terrestrial Gartersnake, Texas Threadsnake, Texas-horned Lizard, Tiger Whiptail, Triploid Checkered Whiptail, Variable Skink, Western Groundsnake, Western Ribbon Snake, Yellow Mud Turtle.

Species Activity Mapping (SAM)
RING-NECKED PHEASANT
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activity areas within the range of a population of pheasants.

CONCENTRATION AREA: An area within the overall range in which pheasant densities are at least 200% greater than in the surrounding overall range.

Species Activity Mapping (SAM)
RIVER OTTER
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all mapped seasonal activity areas within the observed range of a population of river otters.

WINTER RANGE: Areas used by otters during the period when ice cover is prevalent. Will normally, but not necessarily, be smaller than overall range.

CONCENTRATION AREA: Areas where otters are known to concentrate. Otter sightings and signs of otter activity are higher in these areas than in overall range.

Species Activity Mapping (SAM)
SAGEBRUSH VOLE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Sagebrush Vole in Colorado. Sagebrush Vole is primarily associated with sagebrush habitats, especially where big sagebrush co-dominates with native bunchgrasses. Most experts consider the sagebrush vole a sagebrush obligate.

Species Activity Mapping (SAM)
SANDHILL CRANE
(Greater & Lesser)
Seasonal Activity Area Definitions

OVERALL RANGE: The area below 9500 feet which encompasses all known seasonal activity areas of the Colorado subpopulation of Sandhill Cranes.

Species Activity Mapping (SAM)
SCALED QUAIL
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of scaled quail.

CONCENTRATION AREA: Areas where Scaled Quail are known to concentrate; scaled quail sightings and signs of scaled quail activity are more frequent in these areas than in their overall range.

Species Activity Mapping (SAM)
SNOWSHOE HARE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Snowshoe Hare in Colorado. Snowshoe Hare is primarily associated with dense understory vegetation that provides both browse and cover in mature Engelmann spruce (*Picea engelmanni*)-subalpine fir (*Abies lasiocarpa*), and early seral lodgepole pine (*Pinus contorta*).

Species Activity Mapping (SAM)
SOUTHERN RED-BACKED VOLE
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of Southern Red-backed Vole in Colorado. Southern Red-backed Vole is primarily associated with moist and well-developed coniferous forests. They are most abundant in lodgepole pine (*Pinus contorta*) stands, usually between 8,000 and 11,000 feet.

Species Activity Mapping (SAM)
SWIFT FOX
Seasonal Activity Area Definitions

OVERALL RANGE: Areas known to be utilized by swift fox in Colorado. This layer was created to indicate the areas in Eastern Colorado with a high likelihood of having swift fox present. Data from occupancy surveys from 2012 and 2016 were used as well as the location of habitat and landscape features.

Species Activity Mapping (SAM)
WHITE PELICAN
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of white pelicans.

FORAGING AREA: Those bodies of water used by a minimum of 15 birds on four days out of seven from April 15 through September 15.

NESTING AREA: Those islands and/or beach areas where any pelican nests are found. Human disturbance should be eliminated from these areas from April 15 to August 15.

Species Activity Mapping (SAM)
WHITE-TAILED DEER
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of white-tailed deer.

CONCENTRATION AREA: Corridors of riparian habitat along river or stream courses that support higher populations of white-tailed deer, serve as travel corridors and are considered critical

habitat for white-tailed deer.

WINTER RANGE: That part of the range of a species where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each DAU.

HIGHWAY CROSSING: Specific highway areas where white-tailed deer movements traditionally cross roads or railroads, presenting potential conflicts between white-tailed deer and motorists/trains. (More than six highway mortalities per mile of highway or railroad per year is a guide that may be used to indicate highway crossings).

Species Activity Mapping (SAM)
WHITE-TAILED JACKRABBIT
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses the probable range of White-tailed Jackrabbit in Colorado. White-tailed Jackrabbit is primarily associated with grasslands, green pastures, and forests at high altitudes.

Species Activity Mapping (SAM)
WHITE-TAILED PRAIRIE DOG
Seasonal Activity Area Definitions

OVERALL RANGE: An area which encompasses all known seasonal activity areas within the range of a population of prairie dogs.

PRAIRIE DOG HABITAT AFFINITIES:

White-Tailed Prairie Dog: An area typically associated with open shrublands, semi desert grasslands, and mountain valleys in northwestern and west-central Colorado.

Species Activity Mapping (SAM)
WHITE-TAILED PTARMIGAN
Seasonal Activity Area Definitions

OVERALL RANGE: An area encompassing all known seasonal activity areas of the white-tailed ptarmigan.

WINTER RANGE: An area utilized in winter most frequently where drainage basins at or above treeline and stream courses below treeline from 2,591 to 3,810m elevation (8,500 to 12,500ft) where food (willow) and roosting sites (soft snow) are readily available. Winter range is typically

defined from late October thru mid-April. The CDOW Special Report Number 38, Wintering Areas and Winter Ecology of White-tailed Ptarmigan in Colorado published in 1976 was used as the based data for development of the ptarmigan winter range dataset.

Species Activity Mapping (SAM)
WILD TURKEY
(Merriam's & Rio Grande)
Seasonal Activity Area Definitions

OVERALL RANGE: The area which encompasses all known seasonal activity areas within the observed range of a population of wild turkeys.

WINTER RANGE: That part of the overall range where 90% of the individuals are located from November 1 to April 1 during the average five winters out of ten.

WINTER CONCENTRATION AREA: That part of the winter range where densities are at least 200% greater than the surrounding winter range density.

PRODUCTION AREA: Those area(s) that are used by turkeys for nesting during the period from March 15 to August 15. Human activity should be restricted in these areas during this period.

ROOST SITE: Ponderosa pine and cottonwood trees of at least 10" dbh used by turkeys for diurnal and nocturnal perches.

Species Activity Mapping (SAM)
WOLVERINE
Seasonal Activity Area Definitions

POTENTIAL HABITAT: Areas having the highest potential of wolverine occurrences in Colorado. This information was derived from modeling the predicted primary Wolverine habitat for resident adults. Wolverine is primarily associated with high-elevation habitats in the Rocky Mountains containing the arctic and subarctic conditions they require.