New Mexico Department of Game & Fish

U.S. Department of Agriculture - U.S. Forest Service
[Coronado National Forest]
[Gila National Forest]

U.S. Department of the Interior - Bureau of Land Management
[Las Cruces Field Office]

New Mexico Habitat Stamp Program

SOUTHWEST REGION
HABITAT IMPROVEMENT PLAN
2015-2020

Updated August 4, 2017
INTRODUCTION

Under authority of the Sikes Act (16 USC 670 g-n), the New Mexico Habitat Stamp Program (HSP) was implemented in New Mexico on an experimental basis in 1986. In 1991, following careful review and evaluation, the New Mexico State Game Commission adopted a rule making the program operational statewide. The purpose of the HSP is to plan, develop, maintain, and coordinate conservation and rehabilitation programs that are designed to have a positive impact on wildlife and fish populations. Funding for projects implemented through the HSP comes from a $5 stamp purchased by hunters, anglers, and trappers recreating on federal Bureau of Land Management (BLM) or US Forest Service (USFS) managed lands. As such, all funding expended through the HSP is used to directly benefit lands managed by the BLM and USFS.

ORGANIZATIONAL STRUCTURE

The HSP is a partnership between the New Mexico Department of Game and Fish (NMDGF), BLM, USFS, and the public. It is the mutual objective of the agencies to cooperate through the HSP for the management of federal lands in a manner that will provide for high quality fish and wildlife habitat, other natural resources, and recreational experience of its users.

For administrative purposes the state has been divided into five HSP regions. These regions coincide with established BLM Field Offices and USFS National Forest Ranger Districts. An Interagency Committee (IC) and a Citizen Advisory Committee (CAC) administer the HSP in each region. Membership of the ICs is comprised of personnel from each of the participating agencies in the HSP regions. These personnel are responsible for proposal submission, update of planning documents, project implementation, monitoring, and maintenance of HSP infrastructure. The CACs are comprised of 7 members of the public (5 representing sportsmen, 1 representing nonsporting conservation, and 1 representing federal land permittees/lessees) appointed by the State Game Commission. In cooperation with the USFS, BLM, and NMDGF, the CAC provides input and advice on project submissions, planning documents, and program direction. The CACs are also authorized to solicit public input for HSP projects and prioritize projects for funding with Sikes Act funds.
PLAN RATIONALE

New Mexico Administrative Code 19.34.6.11 states the NMDGF, in cooperation with USFS and BLM, shall develop a series of regional five-year project plans for the use of the funds collected under the authority of Sikes Act and this regulation. In conjunction with members of the CAC, NMDGF personnel have met with their federal partners in the BLM and USFS to develop habitat improvement plans for each of the five HSP regions of the state. In an attempt to coordinate funding resources, agency resources, and habitat management objectives, the plans for 2015-2020 have been developed with the following guidelines:

1. Identify ecoregional habitat types in each HSP region
2. Identify wildlife species of management interest in each HSP Region
3. Identify wildlife habitat management opportunities and limiting factors in each HSP Region
4. Identify actions to improve habitat limiting factors

Each plan will be monitored annually at a CAC meeting and updated as necessary.

LIST OF PREPARERS

New Mexico Department of Game and Fish
Margaret (Peggy) Darr
Jacob Davidson
Eric Frey
Nicole Quintana
Kevin Rodden
Virginia (Ginny) Seamster
Reuben Teran

Gila National Forest
Jerry Monzingo
Reuben Gay

Bureau of Land Management
Steven Torrez

Citizen Advisory Committee
Patrick Howard – Chairman
Steve Henry – Vice-Chairman
Don Guber – Outreach Representative
Mike Binns
William Cowell
Dusty Hunt
Jose Arsola Ray, Jr.
STATEWIDE HABITAT STAMP PROGRAM REGIONS

Geographic Information System Base map layer credits:
USGSTopo - USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data.
HABITAT STAMP PROGRAM SOUTHWEST REGION

Geographic Information System Base map layer credits:
USGSTopo - USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data.
SOUTHWEST REGION
Ecoregional Habitat Types

ECOREGIONS and ASSOCIATED HABITATS
The State Wildlife Action Plan (SWAP) for New Mexico identifies New Mexico’s upland (or terrestrial) habitats by dividing the state into six ecoregions (http://www.wildlife.state.nm.us/conservation/state-wildlife-action-plan/). These include Arizona/New Mexico Mountains, Chihuahuan Desert, Colorado Plateaus, High Plains and Tablelands, Madrean Archipelago, and Southern Rocky Mountains. The Southwest Region falls within the following ecoregion classifications (with excerpts as described in the SWAP):

- **Arizona/New Mexico Mountains**
  The Arizona/New Mexico Mountains ecoregion consists of steep mountains and some deeply dissected plateaus. Vegetation consists of chaparral at lower elevations, piñon-juniper and oak woodlands (including Madrean evergreen oak in the south) at mid-elevations, and coniferous forests of ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*) at higher elevations. Above 3,300 m (10,800 ft), this ecoregion also supports the southern-most extent of spruce-fir forest. Habitat types identified in the ecoregion include Rocky Mountain Lower Montane Forest, Intermountain Juniper Woodland, and Madrean Lowland Evergreen Woodland.

- **Chihuahuan Desert**
  The Chihuahuan Desert ecoregion consists of broad basins bordered by isolated, rugged mountains. Habitat types identified within the ecoregion include Chihuahuan Semi-Desert Grassland and Chihuahuan Desert Scrub. Dominant species are blue grama (*Bouteloua gracilis*) and black grama (*B. eriopoda*), creosote (*Larrea tridentata*), American tarwort (*Flourensia cernua*), mesquite (*Prosopis* spp.), and yuccas (*Yucca* spp.). Oak (*Quercus* spp.) and piñon-juniper can be found in small patches of high elevation woodlands above 2,150 m (7,050 ft).

- **Madrean Archipelago**
  The Madrean Archipelago ecoregion terrain consists of broad basins bordered by isolated, rugged mountains. Terrestrial vegetation consists of Chihuahuan Semi-Desert Grassland with characteristic species including black grama (*Bouteloua eriopoda*), tobosagrass (*Pleuraphis mutica*), blue grama (*B. gracilis*), yuccas (*Yucca* spp.), and ocotillo (*Fouquieria splendens*); and Madrean Lowland Evergreen Woodland that supports Emory oak (*Quercus emoryi*), silverleaf oak (*Q. hypoleucoides*), Arizona white oak (*Q. arizonica*), Mexican piñon (*Pinus cembroides*), alligator juniper (*Juniperus deppeana*), and Utah juniper (*J. osteosperma*).

The Southwest Region currently includes approximately 8,937,194 acres of BLM and USFS land, which is approximately 39% of these federal lands statewide. The Las Cruces BLM Field Office makes up approximately 5,568,577 acres (about 62% of the public lands) in the Southwest Region, and the Coronado and Gila National Forests make up approximately 68,617 acres (about 1% of the public lands) and 3,300,000 acres (about 37% of the public lands) in the Southwest Region respectively. The municipalities of Las Cruces, Silver City, Lordsburg, Deming, Truth or Consequences, and Alamogordo all reside within the Southwest Region. The bulk of the remaining land mass in the Southwest Region is military, State Trust, and privately-owned lands.

Game Management Units (GMU) that lie in the Southwest Region include all or parts of the following: 15, 16A, 16B, 16C, 16D, 16E, 17, 18, 19, 20, 21A, 21B, 22, 23, 24, 25, 26, and 27. The Southwest has three areas managed for quality deer hunts in GMUs 17, 23 (Burro Mountains), and 27. Both mule deer and Coues whitetail deer are found in the Region. The Greater Gila is managed for quality elk hunting while the Lesser Gila herd is managed for limited opportunity. A unique hunting opportunity exists with the Persian Ibex.
population inhabiting the Florida Mountains south of Deming (Oryx in the Jornada Basin, Otero Mesa and McGregor Range, and Barbary sheep on the Sacramento Escarpment, McGregor Range, and the Otero Mesa). Desert Bighorn Sheep and Rocky Mountain Bighorn Sheep are present in the Southwest Region and provide limited hunting opportunity.

**BLM Habitat Characteristics:**

There are sixteen Standard Habitat Sites (SHS) found in this area of the Las Cruces District Office (LCDO). Brief descriptions of each follow, with more detailed descriptions contained in the Southern Rio Grande (May 1981) and Las Cruces/Lordsburg (March 1983) Draft Grazing Environmental Impact Statements. Species lists for each SHS are on file in the LCDO.

- **Creosote Rolling Upland**--This habitat type typically is considered a disclimax type or an alternate stable state resulting from conversion of grassland and is generally considered undesirable from a wildlife habitat perspective. Upland areas are drained by numerous arroyos and consist of primarily eroded soils and gravelly inclusions. The vegetative community is predominately creosote (*Larrea tridentata*) and usually exist with a variety of sub-dominate species such as muhly grass (*Muhlenbergia spp.*), burro grass (*Scleropogon brevifolius*), tobosa grass (*Hilaria mutica*), snakeweed (*Gutierrezia sarothrae*), sumac species (*Rhus spp.*), and American tarbush (*Flourensia cernua*).

- **Creosote Hills**--The sub-dominant vegetation composition has an understory of similar grasses and forbs as found in Creosote Rolling Upland, however grama grasses (*Bouteloua spp.*) are more prevalent along with a more diversity of shrub species as mariola (*Parthenium incanum*), wright spicebush (*Aloysia wrightii*), whitethorn acacia (*Vachellia constricta*), and four-wing saltbush (*Atriplex canescens*).

- **Creosote Breaks**--This habitat type is similar to Creosote Rolling Upland with a greater mixture of forbs. It is considered a disclimax type or an alternate stable state resulting from conversion of grassland and is generally considered undesirable from a wildlife habitat perspective. This land form is characterized by defined erosional features, dissected dry watercourse with pronounced changes in elevation.

- **Grass Flat**--This habitat type occurs in low swales that consist of primarily of grass species. The dominant type being tobosa grass. Others are vine mesquite (*Panicum obtusum*), Grama grass species, muhly grass, burro grass, dropseed (*Sporobolus spp.*), sacaton (*Sporobolus spp.*), and lovegrass (*Eragrostis spp.*). Some areas are entirely of alkali sacaton (*Sporobolus airoides*). Shrubs species are found in low numbers with soaptree yucca (*Yucca elata*) being most common along with snakeweed, honey mesquite (*Prosopis glandulosa*) and crown of thorns (*Euphorbia milii*). It is considered to be a climax desert grassland habitat. Maximum long term degradation of this habitat would result in mesquite or creosotebush habitats where desert scrub dominates.

- **Grass Rolling Upland**--This habitat type occurs in non-swale or isolated pockets setting and has a lower density of grass species than the grass flats habitat sites. Grama grass (*Bouteloua spp.*) is common along with numerous other grasses with tobosa grass being dominant. Desert shrubs occur along with perennial forbs. It represents a climax desert grassland habitat. Heavy grazing use would induce vegetative and faunal composition changes toward the intermediate disclimax habitats such as the mixed shrub and half shrub habitats. Maximum long term degradation of this habitat would result in creosotebush habitats in most areas except sandy soils where mesquite habitats would dominate.

- **Grass Mountain**--This habitat type occurs on slopes of mountain ranges above the surrounding uplands. Typically supports a high percentage of grama grass species with inclusions of tobosa grass,
Kentucky bluegrass (*Poa pratensis*), junegrass (*Koeleria macrantha*), and bluestem species. Shrubby vegetation is widely scattered represented by banana yucca (*Yucca baccata*), pricklypear (*Opuntia spp.*), mountain mahogany (*Cercocarpus montanus*), ocotillo (*Fouquieria splendens*), oak species (*Quercus spp.*), beargrass (*Xerophyllum tenax*), apache plume (*Fallugia paradoxa*), rabbitbrush species (*Ericameria spp.*), and sagebrush (*Artemisia spp.*).

- **Piñon-Juniper/Grass Mountain**—This habitat type typically dominated by piñon () and juniper () with sparse to medium dense grass cover of grama grass species, muhly grass species, and three-awn grass species (*Aristida spp.*). The shrub understory consist of mountain mahogany, oak species, rabbitbrush, sumac species, and pricklypear and cholla species (*Opuntia spp.*). Several annual and perennial forbs are represented.

- **Half-Shrub Rolling Upland**—This habitat site is dominated by snakeweed with few other shrub components. Common shrubs of morman tea (*Ephedra spp.*) and soaptree yucca are encountered. Sandy soils are dominant with mesquite and scattered grasses of tobosa grass, blue grama grass (*Bouteloua gracilis*), bush muhly (*Muhlenbergia porteri*), dropseed grass species (*Sporobolus spp.*). Forbs include leather-weed (*Croton pottsii*), globe mallow (*Sphaeralcea spp.*), spurge species (*Euphorbiaceae*), and field bahia (*Bahia spp.*).

- **Half-Shrub Hills**—This habitat site is dominated by snakeweed with morman tea and soaptree yucca in smaller density. The grass community is predominately grama grass species, tobosa grass, muhly grass species, and alkali sacaton. Forbs include leather-weed, globe mallow, spurge species, and field bahia.

- **Mixed Shrub Rolling Upland**—This habitat site is mainly of shrub species with a greater under story of grama grass species, bush muhly, slim tridens (*Tridens muticus*), and three-awn species. Characteristic shrubs are snakeweed, whitethorn acacia, catclaw mimosa (*Mimosa aculeaticarpa*), apache plume, skunkbush (*Rhus spp.*), Wright’s buckwheat (*Eriogonum wrightii*), and mountain mahogany.

- **Mixed Shrub Mountains**—This habitat site is mainly of shrub species that dominate the vegetational aspect with an understory of grama grass species, bush muhly, slim tridens, and three-awn species. Characteristic shrubs are snakeweed, whitethorn acacia, catclaw mimosa, apache plume, skunkbush, Wright’s buckwheat, and mountain mahogany.

- **Mesquite Rolling Upland**—This sandy soils habitat is dominated by honey mesquite (*Prosopis glandulosa*). Other shrub components are creosote, sumac species, soaptree yucca, morman tea, snakeweed, and four-wing saltbush. Tobosa grass is the dominant grass with lesser amounts of panic grass (*Panicum spp.*), grama grass species, and muhly grass.

- **Mesquite Sand Dunes**—This sandy soils habitat is dominated by honey mesquite (*Prosopis glandulosa*). Other shrub components are creosote, sumac species, soaptree yucca, morman tea, snakeweed, and four-wing saltbush. Tobosa grass is the dominant grass with lesser amounts of panic grass (*Panicum spp.*), grama grass species, and muhly grass. Grasses are typically scarce with mesa dropseed (*Sporobolus flexuosus*) being the most common. The dunes vary in height from 2 to 10 feet depending on soil depth. It represents a dis-climax sandy soil habitat where grasslands have been altered due to historic over grazing.

- **Arroyo**—This area is defined as drainage with only a brief intermittent water flow supporting vegetation non characteristic of surrounding uplands. Grass and forb species are often sparse. Typical shrub and tree species are desert willow (*Chilopsis linearis*), hackberry (*Celtis spp.*), apache plume,
soapberry species (Sapindus spp.), salt cedar (Tamarix spp.), littleleaf sumac (Rhus microphylla), honey mesquite, ash species (Fraxinus spp.), and brickelbush (Brickellia spp.). The primary importance of this habitat is the habitat structure it provides for many species. Animal densities and species richness here are pronounced. In addition, this habitat is used almost exclusively by migrating birds.

- Riparian--This habitat occurs along perennial streams and sometimes around permanent water sources. Dominant plant species is salt cedar, with occasional species of cottonwood (Populus spp.), willow (Salix spp.), Arizona sycamore (Platanus wrightii), western box elder (Acer negundo), walnut (Juglans spp.), and ash species (Fraxinus spp.). Understory cover consists of mountain lilac (Ceanothus greggi), ratany (Krameria spp.), and honey mesquite. Grasses are typically sparse. The primary importance of this habitat is the habitat structure it provides for many species. Animal densities and species richness here are pronounced. In addition, this habitat is used almost exclusively by migrating birds.

**Gila National Forest Habitat Characteristics:**

- **Dry Mixed Conifer -** In the Southwest, mixed conifer forest are found at elevation between 6,000 and 10,000 ft, situated between ponderosa pine or pinyon-juniper woodlands below, and spruce-fir forests above. Typically dry mixed conifer is dominated by ponderosa pine with minor occurrence of aspen (Populus spp.), Douglas-fir (Pseudotsuga menziesii), white fir, and Southwestern white pine (Pinus strobiiformis). Currently, much of this type is dominated by closed structure and climax species as a result of fire suppression.

- **Ponderosa Pine -** Ponderosa pine forests are widespread in the Southwest, occurring at elevations ranging from 6,000-7,000ft. The dominant species in this system is ponderosa pine. Other trees, such as Gambel oak (Quercus gambelii), pinyon pine (Pinus spp.), and juniper species (Juniperus spp.) may be present. There is typically an understory of grasses and forbs, with shrub density varying according to association and land use. Significant changes as a result of fire exclusion include increased homogeneity of the shrub structural stages on the landscape, facilitating larger patch sizes of high-severity fire effects.

- **Ponderosa Pine Evergreen Oak -** This type occurs in southern NM at elevations between 5,500-7,200 ft where warm summer seasons and bi-modal precipitation regimes are characteristic. This type is dominated by ponderosa pine and has a well-represented evergreen oak component. Oaks may include Emory oak (Quercus emoryi), Arizona white oak (Q. arizonica), silverleaf oak (Q. hypoleucoides), and gray oak (Q. grisea). Due to the effects of long-term fire suppression in this type, in many locations the current conditions are departed from historic conditions. Typically these changes include in-filling of the canopy gaps, increased density of tree groups; reduced composition, density and vigor of the herbaceous understory plants.

- **Woodlands -** Woodland types in Southwestern NM include Juniper Grass, Pinyon-Juniper woodland, Pinyon-Juniper grassland, Madrean woodland, and Pinyon-Oak woodland. Woodlands occur at elevations between 4,000-7,000ft. The woodland type is a broad grouping of different plant associations with tree and shrub species composition varying throughout the region. The type varies from, historically, more open woodlands with grassy understories to areas of moderate to high density tree canopy with scarce understory of herbaceous plants and shrubs. Due to the effects of long-term fire suppression and other management in woodland types, in many locations the current conditions are departed from historic conditions. Typically these changes include in-filling of the canopy gaps, increased density of tree groups, and reduced composition, density, and vigor of the herbaceous understory plants.
- **Grassland - Montane and Colorado Plateau grasslands are present on the Gila National Forest. Montane grasslands are found at elevations ranging from 8,000-11,000 ft and Colorado Plateau grasslands are found at elevational and temperature gradients above Semi-desert Grasslands and below Montane Grasslands. The Colorado Plateau grasslands are typically associated with Pinyon-Juniper and vegetation coverage consists of mostly grasses and interspersed shrubs. Montane Grasslands harbor several plant associations with varying dominant grasses and herbaceous species. Trees may occur along the periphery of meadows which are seasonally wet.**

- **Riparian - Riparian systems are varied across the Southwest Region and include 21 Ecological Response Units across the SW Region. Some of the more dominant ERUs across the Gila National Forest include Herbaceous Riparian, Sycamore-Fremont Cottonwood, Narrowleaf Cottonwood/Shrub, Fremont Cottonwood/Shrub, Arizona Alder-Willow, and Upper Montane Conifer/Willow. Riparian areas are essential links between upland and aquatic systems, provide critical watershed functions, and provide important habitat to terrestrial and aquatic wildlife.**

**Coronado National Forest Habitat Characteristics:**

**Coronado National Forest – Peloncillo EMA (Environmental Management Area)**
The Peloncillo EMA covers 87,985 acres on the Arizona-New Mexico border. Elevations range from 4,593 to 6,624 feet. Access is limited to primitive roads and there are no developed recreation sites. There are two large wilderness study areas where motorized travel is prohibited: Whitmire Canyon (12,840 acres) and Bunk Robinson (15,690 acres).

Vegetation types (acres) in the Chiricahua, Dragoon and Peloncillo Ecological Management Areas (EMA) and their total acres and percent represented on the Douglas Ranger District.

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Acres by Mountain Range</th>
<th></th>
<th>Peloncillo</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chiricahua</td>
<td>Dragoon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chihuahuan Desert</td>
<td>14,875.65</td>
<td>3,352.23</td>
<td>2,787.41</td>
<td>21015.29</td>
<td>4.9</td>
</tr>
<tr>
<td>Semidesert Grassland</td>
<td>31,990.86</td>
<td>18,342.91</td>
<td>34,478.21</td>
<td>84811.99</td>
<td>19.6</td>
</tr>
<tr>
<td>Interior Chaparral</td>
<td>23,614.84</td>
<td>4,293.99</td>
<td>1,886.52</td>
<td>29795.34</td>
<td>6.9</td>
</tr>
<tr>
<td>Madrean Encinal woodland</td>
<td>169,055.84</td>
<td>26,393.43</td>
<td>48,545.13</td>
<td>243994.40</td>
<td>56.3</td>
</tr>
<tr>
<td>Madrean Pine Oak Woodland</td>
<td>284,18.15</td>
<td>1,365.02</td>
<td>173.47</td>
<td>29956.64</td>
<td>6.9</td>
</tr>
<tr>
<td>Pinyon Juniper Woodland</td>
<td>26.69</td>
<td>52.91</td>
<td>79.59</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Ponderosa Pine-Evergreen Oak</td>
<td>2,290.39</td>
<td></td>
<td></td>
<td>2290.39</td>
<td>0.5</td>
</tr>
<tr>
<td>Dry Mixed Conifer</td>
<td>19,705.16</td>
<td></td>
<td></td>
<td>19705.16</td>
<td>4.5</td>
</tr>
<tr>
<td>Wet Mixed Conifer</td>
<td>456.25</td>
<td>35.14</td>
<td></td>
<td>491.39</td>
<td>0.1</td>
</tr>
<tr>
<td>Cottonwood Willow Riparian</td>
<td>2.00</td>
<td></td>
<td>2.00</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Montane Willow Riparian Forest</td>
<td>764.73</td>
<td>284.44</td>
<td>31.95</td>
<td>1081.12</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>29,1198.56</td>
<td>54,122.08</td>
<td>8,7902.68</td>
<td>433223.32</td>
<td>100.0</td>
</tr>
</tbody>
</table>

- **Chihuahuan Desert - On the Douglas Ranger District, Chihuahuan Desert ecosystem ranges from 4000 to 5000 feet, exclusively on slopes less than 10 degrees (18%). Virtually this entire ecosystem is on the southwest side of the Dragoon Mountains, the south end of the Swisshelm Mountains near Leslie Canyon, and a few miles northeast of Apache Pass near the Dos Cabezas Mountains. It is associated with fans that are downslope of limestone. Creosote (Larrea tridentata) can be dominant or co-dominant with whitethorn acacia (Acacia constricta) and/or mariola (Parthenium incanum). Common associates include ocotillo (Fouquieria splendens), fairy duster (Calliandra eriophylla), zinnia (Zinnia acerosa), mesquite (Prosopis velutina, P. glandulosa), soaptree yucca (Yucca elata) and prickly pear (Opuntia spp) (Chiricahua FireScape 2011).**
• Semidesert Grasslands - Semidesert grasslands on the Douglas Ranger District occur in Zeits Canyon at the northern end of the Dos Cabeza Mountains to 6500 feet on the south slope of Bowie Mountain. Grasslands also skirt the Dragoon Mountains and Dos Cabeza Mountains on all sides, typically at elevations under 6000 feet. The latter is unusual because this ecosystem usually occurs on less than 18% slopes. Grasslands also inhabit the southeast side of the Chiricahua Mountains near Horseshoe Canyon and along Mesa Draw above Leslie Canyon National Wildlife Refuge. The majority of the grasslands are alluvial fans along the west side of the Dragoon Mountains and the west side of the Chiricahua Mountains, especially between Whitewater Draw and Mesa Draw (Chiricahua FireScape 2011).

The shrub component of these grasslands includes mesquite ranging from 3900 feet in the foothills of the Dragoon Mountains to 6,900 feet near Pothole Peak in the southeastern Chiricahua Mountains, as well as ocotillo, beargrass (*Nolina microcarpa*) and rosette monocots (*Agave, Yucca, Dasylirion wheeleri*). The Chihuahuan semidesert grassland can also include a creosote/Acacia component where it intergrades with Chihuahuan Desert vegetation (Chiricahua FireScape 2011).

• Interior Chaparral - Interior chaparral occurs across the Coronado National Forest as a discontinuous band of vegetation on mountain foothills and lower slopes where low-elevation desert transitions into wooded evergreens. Most chaparral exists at mid-elevations (3,000 to 6,000 feet) and is bordered by and intermixed with Madrean encinal woodland at the upper elevations and grasslands or deserts at lower elevations. It comprises mixed shrub associations including, but not limited to, the following species: Manzanita (*Arctostaphylos* spp.), crucifixion thorn (*Canotia holacantha*), desert ceanothus (*Ceanothus greggii*), mountain mahogany (*Cercocarpus montanus*), antelope bush (*Purshia* spp.), silktassle (*Garrya* spp.), Stansbury cliffrose (*Purshia stansburiana*), shrub live oak (*Quercus turbinella*), and sumac (*Rhus* spp.). Interior chaparral is fire adapted and the vegetation and wildlife have evolved to be resilient to the effects of fire (USDA FS 2013a).

• Madrean Encinal Woodland - Madrean encinal woodland is the most abundant and widespread vegetation community on the Coronado National Forest, covering approximately 42% of Forest lands (USDA FS 2013a), and by far the largest ecosystem on the Douglas Ranger District. It occurs across a broad elevation range, extending up to 8,800 feet on the south slope of Johnson Peak in the Chiricahua Mountains above Rucker Canyon. The ecosystem also includes a diversity of landforms and substrates. About 25% is found on slopes less than 18%; 72% is on steep slopes of 18-70%; and 3% is on very steep slopes exceeding 70% (Chiricahua FireScape 2011).

Oak species include Emory oak, Arizona white oak, silver leaf oak, and Mexican blue oak (*Quercus oblongifolia*). Associated species with varying abundance include alligator juniper (*Juniperus deppeana*), pinyon pine (*Pinus discolor*), manzanita, and mountain mahogany. Bunchgrasses occur in the understory, particularly *Muhlenbergia* species (Chiricahua FireScape 2011).

• Madrean Pine-Oak Woodland - On the Douglas Ranger District, Madrean pine-oak woodland ranges from 5600 to 8400 feet and extends from Rough Mountain at the northern end of the Chiricahua Mountains, to Erickson Peak, Rucker and Price Canyon at the southern end of the range. There is no Madrean pine-oak woodland in the Dos Cabezas Mountains or Dragoon Mountains (Chiricahua FireScape 2011).

Madrean pine-oak woodland favor mesic slopes and canyon bottoms over xeric slopes (64% vs. 36%). The vegetation is a mosaic of Chihuahuan pine (*Pinus leiophylla*) and Apache pine (*P. engelmannii*) along with alligator juniper, pinyon pine, oaks (*Quercus* spp.), Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*P. ponderosa*), and Arizona pine (*P. arizonica*) can be locally common
but are generally not co-dominant. Dense manzanita, silk tassel, and silverleaf oak, a kind of chaparral that favors colluvial slopes built of landslide debris, also occurs (Chiricahua FireScape 2011).

- **Riparian** - On the Douglas Ranger District approximately 656 acres of riparian areas occur on relatively open watercourses below 5,000-5,500 feet. These riparian areas are also relatively flat; 93% are on slopes less than 18% slope, where canyons leave the mountain bedrock and open onto alluvial fans. Four major watercourses (Leslie, Siphon, Rucker/Whitewater, and Pinery) are characterized by sycamore (*Platanus wrightii*) and velvet ash (*Fraxinus velutina*). Lower elevation ecosystem typically holds a higher proportion of ash, with significant contributions from hackberry (*Celtis reticulate*) and/or desert willow (*Chilopsis linearis*). Adjacent terraces are usually home to bunchgrasses and very large Emory oak averaging 15 meters tall. At Leslie Canyon, abundant perennial water has created a jungle of ash, willow, and in places exotic Johnsongrass (*Sorghum halepense*).
SOUTHWEST REGION

Wildlife Management Species of Interest

Part of the Habitat Stamp Program’s mission is to diversify habitats to benefit wildlife for the enjoyment of the people of New Mexico. In fulfilling this mission, program cooperators plan habitat improvements primarily for game species, with the knowledge that the resulting diversified habitats benefit an entire suite of game and non-game wildlife.

NOTE: Nongame wildlife species identified below are provided for informational and planning purposes only, and are not intended to be the target species of conservation or habitat management actions implemented through the Habitat Stamp Program. Additional information and recommended conservation actions for the benefit of these species can be found in the Department’s State Wildlife Action Plan at http://www.wildlife.state.nm.us/conservation/state-wildlife-action-plan/ and/or applicable federal agency management plans.

GAME MAMMALS

Black Bear (Ursus americanus)
In any habitat manipulation project, effort should be made to protect important forage species for black bear, primarily oak (Quercus spp.) but includes fruiting species such as chokecherry (Prunus spp.), prickly pear cactus (Opuntia spp.) and barberry/algerita (Berberus spp.). Intact riparian corridors are also important for potential foraging resources they contain and as movement corridors. Conversion of these types to earlier seral stages can be beneficial as long as some portions of the habitat containing older seral stages are also maintained.

Coues Whitetail Deer (Odocoileus virginianus couesi)
The Department is beginning to collect data on deer in a way that promotes a better understanding of Coues Whitetail populations in New Mexico. Projects that promote habitat enhancements through prescribed fire and thinning in Coues Whitetail habitats should be identified and implemented.

Mule Deer (Odocoileus hemionus)
Chronic Wasting Disease (CWD) has currently been confirmed in portions of the Southwest Region. Any management actions taken should ensure to prevent the spread of CWD to other locations. NMDGF would like to continue working with Silver City to manage urban deer issues. A part of this management direction has included the translocation of deer out of Silver City to other areas.

The Southwest Region has experienced some of the worst droughts during recorded history in the past few years. Because of these droughts and the vegetation succession, the carrying capacity is most likely lowered for mule deer. Therefore as managers, the focus should be to increase the carrying capacity by designing and implementing landscape-scale projects.


- Western Association of Fish and Wildlife Agencies – Mule Deer Working Group Publications: http://www.wafwa.org/committees__groups/mule_deer_working_group/publications/.html
Desert Bighorn Sheep (*Ovis canadensis mexicana*)
Management actions implemented should help promote desert bighorn sheep (DBHS) population growth in all areas with DBHS. Maintaining connectivity between DBHS in the Fra Cristobal & Caballos mountain ranges is a priority for the NMDGF. The Red Rock breeding facility is located in the Southwest Region and serves as a source population for wild releases of DBHS on the San Andres Mountains. The DBHS on San Andres may have unique genetic information that the NMDGF has interest in learning more about. Translocation of sheep into the Peloncillo and Hatchet Mountains will be considered by the NMDGF sometime in the future.

Rocky Mountain Bighorn Sheep (*Ovis canadensis canadensis*)
The San Francisco River herd is located in the Southwest Region. Management actions should help to promote natural expansion into surrounding suitable habitats, which includes the recently acquired New Mexico Game Commission Double E Ranch property.

Elk (*Cervus canadensis nelsoni*)
Management actions should maintain quality elk hunting opportunities in the Gila herd in GMUs 15 and 16A-E. Habitat improvements in these areas should focus within Core Occupied Elk Range (COER) boundaries. Improvements designed with the main goal of improving elk habitat in Outside COER areas should be closely examined before implementation.

Javelina (*Peccari tajacu sonoriensis*)
Javelina are found in greatest abundance in the extreme southwestern part of the state with scattered herds seen in Catron, Dona Ana, Sierra, and Socorro counties. Javelina occupy a variety of habitats including desert, chaparral, oak woodlands, and the fringes of pine forests. Javelinas are primarily herbivores, but they will occasionally eat insects and animal matter. Succulent plants comprise a large part of their diet, but Javelina will also readily consume prickly pear, cholla and hedgehog cactus, bulbs, rhizomes, roots, tubers, acorns, manzanita berries, pine nuts, grasses, mesquite beans, catclaw and juniper.

Pronghorn Antelope (*Antilocapra americana americana*)
Management actions should continue to facilitate and maintain habitat connectivity for pronghorn in the Slaughter Mesa area of the Gila National Forest. Projects that facilitate creating or maintaining habitat connectivity across other grassland habitats in the Southwest Region should be investigated, along with projects that promote forb production and protection or enhancement of fawning areas.

Management actions to benefit pronghorn should focus on sites with <20% slope and sites with <10% are preferred while sites with >20% slope are avoided. Most pronghorn observations in New Mexico and Arizona are usually within 2 miles of water but pronghorn are also known to avoid the first 400 yds. (366 m) of water sources (presumably to reduce the threat of predation), and may vacate the immediate area around a water source after they have fulfilled their daily water requirements. Pronghorn prefer low vegetative structure ranging from 10-18 inches; vegetation over 25 inches is typically avoided. Plants, including grasses, more than 2.5 feet tall are detrimental to pronghorn and dense stands of such plants preclude the animal’s presence. Therefore trees and tall shrubs >2.5 feet should comprise less than 5% of the cover and should not sever corridors necessary for seasonal movements. Although the use of habitats with tree cover is usually low, it increases during hot, dry periods when pronghorn use scattered trees or other structural cover for shade.


Squirrel
Abert’s squirrel (*Sciurus aberti aberti*), red squirrels (*Tamiasciurus hudsonicus lychnuchus*), and Arizona gray squirrels (*Sciurus arizonensis arizonensis*) can be found in the Southwest Region. Squirrels are primarily found in montane forests. They feed on plant materials including grains, nuts, bark, twigs and
woody vegetation. The species utilize different forest habitat types, and management objectives should include addressing forest health and improving habitat in a variety of forest habitats.

**GAME BIRDS**

**Band-tailed Pigeon (*Patagioenas fasciata*)**
Band-tailed pigeon inhabit montane conifer or mixed-species forests. Preferred habitat tends to be dominated by pine (*Pinus* spp.), oak (*Quercus* spp.), and juniper (*Juniperus* spp.), and has abundant berry-producing shrubs. Food availability is a major determinant of band-tailed pigeon abundance, distribution, and productivity. Their diet includes nuts, seeds, and fruits of deciduous trees and shrubs, including acorns, elderberry, manzanita, and juniper. They will also feed on agricultural grains in fields and at feedlots.

**Dusky Grouse (*Dendragapus obscurus*)**
Dusky grouse prefer open coniferous, aspen and mountain-shrub habitats in summer, and exclusively use montane conifer forest in the winter. MO include improving habitat by addressing forest health issues, improving shrub understory and diversity, and creating open canopy.

**Gambel’s quail (*Callipepla gambelii*)**
Gambel’s quail are found in desert shrub habitats often dominated by honey mesquite (*Prosopis glandulosa*) and fourwing saltbush (*Atriplex canescens*). They are often found in river valleys and drainages and into mountains adjacent to semi-desert grasslands. They consume grasses, forbs and invertebrates. Providing overhead shrubberies that screen the birds from sun, shields them from birds are prey, and allow roosting sites are important in habitat management.

- New Mexico Quail Habitat Guidelines

**Scaled Quail (*Callipepla squamata*)**
Scaled quail are found in mixed shrub desert grassland habitats. Management objectives include improving rangeland habitat by creating patchy ground cover of shrub forbs and grasses. This can be accomplished by promoting overhead cover (shrub plantings, exclusion areas around shrubs, brush piles, etc.) in pure grasslands, reducing over abundant woody vegetation (*Juniperus* spp.), Creosote (*Larrea tridentata*), etc., and promoting forb production in current and potential range.

- New Mexico Quail Habitat Guidelines:

**Montezuma quail (*Cyrtonyx montezumae*)**
Montezuma quail are found in pine-oak and oak scrub habitats, especially in open woodlands with a grass understory. They feed on tubers, as well as forbs, bulbs, insects, and acorns. Management objectives include creating a grassland/forest mosaic with an understory of high diversity and adequate height grasses through a combination of forest thinning, prescribed fire, and managed grazing. Additionally, creating cover of oaks for acorn production and tuber plants including yellow nutsedge (*Cyperus esculentus*) and Gray’s wood sorrel (*Oxalis grayi*) is important in Montezuma quail habitat.

- New Mexico Quail Habitat Guidelines
Gould’s Turkey (*Meleagris gallopavo mexicana*)
The Department is working to increase the existing Gould’s Turkey population in the Peloncillo Mountains through transplants and habitat enhancement. Annual surveys are conducted in the spring, and projects that promote prescribed fire, tree thinning, and roost tree protection in Gould’s Turkey habitat should be identified and implemented. Projects that improve free-standing water distribution should be investigated and implemented where applicable.

Merriam’s Wild Turkey (*Meleagris gallopavo merriami*)
Turkeys occur in pinion-juniper woodlands, mixed conifer forests and ponderosa oak forests. They consume invertebrates and plant material. Turkeys require large trees for roosting cover, clump grasses and shrubs as nest cover, and young grass shoots and mast production for forage. Management objectives include improving habitat by addressing forest health issues and preserving roost trees, forest thinning to create more open habitat, creating or improving summer/brood areas, promoting regeneration of mast-producing trees, and improving shrub understory and diversity. Projects that improve free-standing water distribution should be investigated and implemented where applicable.

Mourning Dove (*Zenaida macroura*)
Mourning doves utilize a variety of habitats. Doves will nest in any types of habitat including trees, shrubs, man-made structures, and on the ground. They avoid nesting in dense, forested areas. Food consists almost exclusively of seeds, both native and introduced. Mourning doves will use water sites, but prefer these to be open and free of tall, concealing vegetation. Trees, fences, or other structures which provide perching sites near water will be heavily utilized by doves.

White-winged Dove (*Zenaida asiatica*)
White-winged doves occupy semiarid, dense thorny woodlands, desert scrub, and riparian woodlands. Habitats can include: honey mesquite, hackberry, oak-juniper, and salt cedar. Mostly nest in interior patches rather than along habitat edge. Primary food sources include seeds, mast, and fruit, but will also utilize cacti and agricultural crops. White-winged doves will frequently use water sites, an prefer to drink in open areas.

**SPORTFISH**

**Brown Trout (*Salmo trutta*)**
Brown trout is a non-native trout species, but is the most wide spread wild trout species and provides the most angling opportunity for wild trout in New Mexico. Brown trout typically occur in first to third order montane streams and are found in all of the major drainages in New Mexico. Similar to the other trout species, habitat requirements for brown trout include cool to cold water low in turbidity and pollutants, stream channel with equal pool to riffle ratios, low to moderate percentage of substrate fines, stable stream banks, sufficient instream cover, and adequate water flows especially during fall spawning and warm summer months. Habitat improvement projects should concentrate on reducing channel width-to-depth ratios, increasing percentage and depth of pools, increasing large woody debris, increasing fine sediment transportation, and increasing riparian vegetation canopy.

**Channel Catfish (*Ictalurus punctatus*)**
Channel catfish occur in several warm water streams and are stocked into several lakes in southwestern New Mexico. Channel catfish provide great fishing opportunity during summer months. Habitat requirements for channel catfish are extremely diverse, but typically include warm water, low to moderate turbidity, and adequate structure features such as large boulders and logs for cover. Habitat projects should concentrate on improving water quality by reducing sedimentation and nutrient input into lakes. Channel catfish populations will also benefit from projects that include structure installation to improve cover and spawning habitat.
Gila Trout (*Oncorhynchus gilae*)

Although currently listed as Threatened under the federal Endangered Species Act and the New Mexico Wildlife Conservation Act, Gila trout are currently being managed for angling recreational opportunities in some streams in the Gila River basin. Gila trout are found in moderate to high gradient perennial mountain streams. They require clean gravel substrates for spawning, cool temperatures, and sufficient pool density and habitat to provide refuge during periods of drought and warm temperatures. Many streams have been impacted by recent wildfires and projects should focus on improving habitat by developing pools and other refugial habitat (i.e., undercut banks) and increasing sinuosity and stream cover and shading. Projects to improve aquatic habitat for Gila trout should also identify or include opportunities to increase angler access.

Rainbow Trout (*Oncorhynchus mykiss*)

Almost all the rainbow trout that occur in New Mexico are a result of the Department's stocking efforts. Rainbow trout provide significant angling opportunity in both lakes and streams. Habitat requirements for rainbow trout include cold clean water, steam channels with adequate deep pools and low substrate fines, and lakes with high dissolved oxygen and neutral pH. Habitat projects in streams should concentrate on increasing deep pools to hold and eventually distribute stocked rainbow trout. Lake projects should concentrate on maintaining or increasing depths, reducing sediment input, controlling aquatic vegetation, and stabilizing water levels.

Smallmouth Bass (*Micropterus dolomieu*)

Smallmouth bass occur in several cool to warm water mid-order streams in southwestern New Mexico such as the lower Gila River and San Francisco river drainages. Habitat requirements for smallmouth bass include deep pools, adequate canopy coverage for shade, and clean gravel and cobble substrate. Habitat projects should concentrate on upper watershed health to reduce large scale wildfires, control sedimentation, and sustain adequate flows.

Tiger Muskie (*Esox masquinongy* X *Esox lucius*)

Tiger muskies are stocked into Quemado Lake by the Department to control undesired fish species and provide a unique fishing opportunity. Habitat requirements for tiger muskie include lakes with cool to cold water, large littoral zones, and moderate submergent aquatic vegetation densities. Habitat projects should concentrate on watershed health upstream of Quemado to improve water quality by reducing sedimentation and nutrient input.

Additional fisheries management information for the Southwest Region can be found in the Statewide NMDGF Fisheries Management Plan (http://www.wildlife.state.nm.us/fishing/fisheries-management/).

NONGAME WILDLIFE

The NMDGF has identified the following nongame birds as high priority species of management interest in the Southwest Region: Pinyon Jay (*Gymnorhinus cyanocephalus*), Bendire’s Thrasher (*Toxostoma bendirei*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Mexican Spotted Owl (*Strix occidentalis lucida*), Juniper Titmouse (*Baeolophus ridgwayi*), Virginia’s Warbler (*Oreothlypis virginiae*), Gray Vireo (*Vireo vicinior*), Flammulated Owl (*Psiloscops flammeolus*), Grace’s Warbler (*Setophaga graciae*), Lewis’s Woodpecker (*Melanerpes lewis*), Red-faced Warbler (*Cardellina rubrifrons*), Chestnut-collared Longspur (*Calcarius ornatus*), McCown’s Longspur (*Rhynchophanes mccownii*), Mexican Whip-poor-will (*Antrostomus arizonicus*), Lucy’s Warbler (*Oreothlypis luciae*), Painted Redstart (*Myioborus pictus*), Black-chinned Sparrow (*Spizella atrogularis*), Williamson’s Sapsucker (*Sphyrapicus thyroideus*), and Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*).

The Southwest Region of New Mexico is a hotspot of biodiversity for species in many taxonomic groups.
There are over a hundred Species of Greatest Conservation Need (SGCN) found in the Madrean Archipelago ecoregion, which constitutes the Southwestern corner of the Southwest Region. Additional information and conservation information on nongame birds, mammals, fish, reptiles, amphibians, and invertebrates can be found in the State Wildlife Action Plan (http://www.wildlife.state.nm.us/conservation/state-wildlife-action-plan/).
SOUTHWEST REGION
Regional Wildlife and Habitat Management Issues

WILDLIFE MANAGEMENT and LIMITING HABITAT FACTORS
A fundamental principle to managing wildlife is that any population needs the correct arrangement and adequate amounts of food, water, shelter, and space. If any part of these habitat features is limiting at any point in time, the wildlife population may suffer or move to an area that provides the habitat components. While there is a common understanding that food, water, and shelter are primary habitat components, there is less understanding on what is meant by space. In the context of this document, space is related to the density and connectivity of a wildlife population. Space becomes a limiting factor when the population is too sparse to effectively reproduce, too crowded to thrive, or habitat factors limit the ability of wildlife to disperse or move across the landscape. Factors identified below are described as they pertain to the Habitat Stamp Program.

Adverse human impacts to wildlife during critical periods
(Desert Bighorn Sheep)
Prescribed burns should not be done during the lambing season for desert bighorn sheep (mid-December through mid-February).

Failing or outdated HSP infrastructure
Maintenance of existing HSP infrastructure is an ongoing and necessary task in the Southwest Region. Actions should be taken to fully inventory and set up a schedule to monitor all existing HSP infrastructure, and develop a maintenance program to ensure all infrastructure is being adequately maintained.

Fire Used for Habitat Management
When environmental conditions are appropriate, prescribed fire should be used to restore vegetative structure, grass, shrub, and forb species composition, and natural fire regimes of forest and grassland habitats.

Human/wildlife conflicts
Projects that improve habitat conditions away from urban environments or private lands may help to minimize these interactions in the Southwest Area. Illegal immigration is an ongoing issue on the Coronado National Forest.

Hunting and fishing access
(All Species)
Actions taken should be to identify areas that are access limited and improve by building new roads or working with landowners to gain access.

Invasive species impacts to habitat and native species.
(Native Alligator Juniper)
On US Forest Service Lands, actions taken should be to develop plans utilizing prescribed fire and/or herbicide treatment after mechanical treatment of Alligator Juniper.

It is important to note that keeping some juniper trees may be beneficial since it represents a food source for a variety of species. Mature trees are especially valuable sources of food and nest cavities for birds (Gillihan 2006: http://www.birdconservancy.org/wp-content/uploads/2015/08/PJ-manual-Nov-08-low-res.pdf).

Lack of adequate grass cover
(Scaled Quail, Gambel’s Quail, Montezuma Quail)
Actions proposed should be to enhance grasslands in quail habitats to provide adequate nesting and escape
cover. Site-specific appropriate stocking rate should be maintained.

**Lack of rearing cover**  
(Pronghorn)  
Actions proposed should be to identify, protect, and enhance known fawning habitats, and maintain a site-specific appropriate stocking rate.

**Lack of quality forage**  
(Mule Deer, Scaled Quail)  
Overall, the browse component is in poor condition due to the lack of disturbance, specifically fire, necessary to change the landscape from a climax state to early successional stages. The following is taken from the Habitat Guidelines for Mule Deer publication written and distributed by the Mule Deer Working Group:

“The presence and condition of the shrub component is an underlying issue found throughout different ecoregions and is important to many factors affecting mule deer populations. Shrubs occur mostly in early successional habitats; that is, those recently disturbed and going through the natural processes of maturing to a climax state. This means disturbance is a key element to maintaining high quality deer habitat. In the past, different fire cycles and human disturbance, such as logging, resulted in higher deer abundance than we see today. Although weather patterns, especially precipitation, drive deer populations in the short-term, only landscape-scale habitat improvement(s) will make long-term gains in mule deer abundance in many areas”.

Actions proposed should be to develop plans to utilize disturbance such as fire or mechanical treatments. The effects of fire on SGCN, including birds that nest in the Peloncillo Mountains, and bats that depend on agave for nectar should be considered.


**Lack of water availability**  
(Mule Deer, Elk, and Pronghorn Antelope)  
Water distribution is a limiting factor in many parts of the arid Southwest Region. Actions proposed should be to develop plans and place water sources, at a minimum, no more than 3 miles apart. Water sources can be designed to benefit a diversity of species, including bats and other non-game animals.

**Limited population distribution**  
(Rocky Mountain and Desert Bighorn Sheep)  
Actions taken should be to trap and translocate while controlling predators.

**Limiting factors for aquatic sportfish**

**Brown Trout**
- Low seasonal flows especially during fall and winter months
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity, temperatures, and substrate fines.
- Wildfire

**Channel Catfish**
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity and nutrients input.

**Gila Trout**
- Low seasonal flows especially during fall and winter months
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity, temperatures, and substrate fines.
- Wildfire
Rainbow Trout
- Low seasonal flows especially during warm summer months
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity, temperatures, and substrate fines.
- Wildfire

Smallmouth Bass Limiting factors:
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity, temperatures, and substrate fines.
- Wildfire

Tiger Muskie Limiting factors:
- Water quality degradation from poor watershed health-loss of riparian vegetation that causes bank instability and increased turbidity and nutrients input.

Loss of habitat due to encroachment of woody vegetation
(Historical grasslands invaded by alligator juniper, creosote, and mesquite)
On US Forest Service lands, actions taken should be to develop plans utilizing prescribed fire and/or herbicide treatment after mechanical treatment of Alligator Juniper. On BLM lands, actions taken should be to develop plans utilizing herbicide treatment on woody species.

It is important to note that keeping some juniper trees may be beneficial since it represents a food source for a variety of species. Mature trees are especially valuable sources of food and nest cavities for birds (Gillihan 2006, http://www.birdconservancy.org/wp-content/uploads/2015/08/PJ-manual-Nov-08-low-res.pdf.)

Obstructive or non-wildlife friendly fencing
(Pronghorn)
Actions proposed should be to modify fences to wildlife friendly specifications and remove fences that are no longer required for management. The Department is supportive of pronghorn-friendly fencing at appropriate crossing locations and should include a smooth bottom wire with the bottom strand a minimum of 16’ from the ground with recommendations of the top wire no more than 38’ high.

Poor riparian condition
(Wild Turkey, Gambel’s Quail)
Actions taken should identify areas where riparian habitat can be improved by management actions such as fencing, planting, seeding, road relocation, road drainage improvement, road decommissioning. Planting patches of native vegetation may be especially beneficial in areas where there are monotypic stands of invasive species including Tamarisk (Tamarix spp.).

Wildlife habitat connectivity
(Pronghorn)
Actions taken should be to create and maintain travel and habitat connectivity corridors. Connectivity of riparian habitat is especially valuable.

Wildlife/vehicle collisions
(Mule Deer)
Many wildlife-vehicle collisions have occurred in the Southwest Region, especially in the area around Silver City and including NM-90 between Silver City and Lordsburg.
### STATEWIDE HABITAT STAMP PROGRAM

**Project Types to Address Limiting Factors**

(with units of accomplishments defined)

<table>
<thead>
<tr>
<th>PROJECT TYPES AND PROJECT SUB-TYPES</th>
<th>Accomplishment Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT TYPE 1. Maintain integrity and safety of existing habitat improvements</td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Maintain existing program structures to extend their usefulness.</td>
<td>structures</td>
</tr>
<tr>
<td>B. Maintain existing vegetative treatments to optimize benefits to wildlife.</td>
<td>acres</td>
</tr>
<tr>
<td>PROJECT TYPE 2. Improve upland vegetative health and diversity.</td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Apply fire to improve forage quantity and/or quality.</td>
<td>acres</td>
</tr>
<tr>
<td>B. Apply herbicides to improve forage quantity and/or quality.</td>
<td>acres</td>
</tr>
<tr>
<td>C. Mechanically treat vegetation to improve forage quantity and/or quality.</td>
<td>acres</td>
</tr>
<tr>
<td>D. Manage vegetation to increase woody structural diversity.</td>
<td>acres</td>
</tr>
<tr>
<td>E. Manage vegetation to reduce or create fuels.</td>
<td>acres</td>
</tr>
<tr>
<td>PROJECT TYPE 3. Improve functionality of riparian habitat (perennial and ephemeral).</td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Install barriers to protect function of springs, seasonally wet areas, or earthen tanks.</td>
<td>acres</td>
</tr>
<tr>
<td>B. Plant vegetation to enhance function of riparian and ephemeral habitats.</td>
<td>acres</td>
</tr>
<tr>
<td>C. Apply herbicides to remove or retard invasive vegetation from riparian, ephemeral habitats, or earthen tanks.</td>
<td>acres</td>
</tr>
<tr>
<td>D. Implement other treatments to improve riparian/ephemeral habitats (e.g. install fencing or off-channel water developments to protect riparian habitat).</td>
<td>acres</td>
</tr>
<tr>
<td>PROJECT TYPE 4. Improve aquatic habitats.</td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Install barriers to fish movement to protect native fish populations.</td>
<td>barriers</td>
</tr>
<tr>
<td>B. Install in-stream channel structures to diversify habitats.</td>
<td>structures</td>
</tr>
<tr>
<td>C. Remove sediment, stabilize impoundment, seal reservoir, or improve spillway to restore function of aquatic habitat.</td>
<td>acres</td>
</tr>
<tr>
<td>D. Other (e.g. install mechanical devices to improve water quality)</td>
<td>devices</td>
</tr>
<tr>
<td>PROJECT TYPES AND PROJECT SUB-TYPES</td>
<td>Accomplishment Units</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>PROJECT TYPE 5. Increase availability and distribution of year-round water.</strong></td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Install artificial structures to provide ground level water sources where free-water is lacking.</td>
<td>structures</td>
</tr>
<tr>
<td>B. Manipulate sites to improve free-water availability at naturally occurring water sources (e.g. spring reconstruction, create or rehabilitate wetlands)</td>
<td>sites</td>
</tr>
<tr>
<td>C. Construct earthen tank or remove sediment, stabilize impoundment, seal reservoir, or improve spillway to provide a water source.</td>
<td>tanks</td>
</tr>
<tr>
<td>E. Other water source development.</td>
<td>structures</td>
</tr>
<tr>
<td><strong>PROJECT TYPE 6. Wildlife/Fisheries Management</strong></td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Supplement or translocate native species into suitable habitat.</td>
<td>wildlife numbers</td>
</tr>
<tr>
<td>B. Reintroduce extirpated native wildlife into suitable habitat.</td>
<td>wildlife numbers</td>
</tr>
<tr>
<td><strong>PROJECT TYPE 7. Limit adverse impacts of man-made structures and human/wildlife interactions.</strong></td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Install barriers to limit or control motorized vehicle access in sensitive or critical wildlife habitats.</td>
<td>structures</td>
</tr>
<tr>
<td>B. Obliterate, realign, or relocate roads/trails to limit human access and disturbance in critical fish and wildlife habitats.</td>
<td>miles</td>
</tr>
<tr>
<td>C. Limit other human impacts to fish/wildlife habitat.</td>
<td>structures</td>
</tr>
<tr>
<td>D. Remove or modify fences to minimize impacts to wildlife.</td>
<td>miles</td>
</tr>
<tr>
<td>E. Facilitate or maintain wildlife habitat connectivity.</td>
<td>structures</td>
</tr>
<tr>
<td>F. Treatments to attract wildlife from wildlife/human conflict areas.</td>
<td>projects</td>
</tr>
<tr>
<td>G. Assist in wildlife management law enforcement and compliance efforts.</td>
<td>hours</td>
</tr>
<tr>
<td><strong>PROJECT TYPE 8. Enhance beneficial uses and enjoyment of fisheries and wildlife resources.</strong></td>
<td></td>
</tr>
<tr>
<td>PROJECT SUB-TYPES</td>
<td></td>
</tr>
<tr>
<td>A. Improve or construct roadways or trails to improve sporting access.</td>
<td>miles</td>
</tr>
<tr>
<td>B. Install wildlife friendly fencing to improve domestic grazing management practices that benefit wildlife habitat.</td>
<td>miles</td>
</tr>
<tr>
<td>C. Install infrastructure to improve sporting satisfaction (e.g. fishing platforms, toilets, cattle guards)</td>
<td>structures</td>
</tr>
<tr>
<td>D. Provide educational opportunities concerning program work for citizen advisors, administrators, public, and media.</td>
<td>number</td>
</tr>
</tbody>
</table>
### PROJECT TYPES AND PROJECT SUB-TYPES

<table>
<thead>
<tr>
<th>E. Install signs to inform public of program activities.</th>
<th>Accomplishment Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
</tr>
</tbody>
</table>

**PROJECT TYPE 9. Improve health and functionality of watersheds.**

**PROJECT SUB-TYPES**

A. Install structures to improve watershed function (e.g. erosion control).  

<table>
<thead>
<tr>
<th>Accomplishment Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>structures</td>
</tr>
</tbody>
</table>

**PROJECT TYPE 10. Inventory/monitor wildlife populations, habitats, or project work to assess needs or achievement of HSP Strategic Project Sub-Types.**

**PROJECT SUB-TYPES**

A. Pre-monitoring of habitat improvements to obtain baseline data.  
B. Post-monitoring of habitat improvements to determine effectiveness.  
C. Monitoring fish and wildlife populations.  
D. Purchase equipment to promote program activities.  

<table>
<thead>
<tr>
<th>Accomplishment Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>surveys</td>
</tr>
</tbody>
</table>

**PROJECT TYPE 11. Provide or improve shelter for wildlife benefit.**

**PROJECT SUB-TYPES**

A. Create infrastructure to assist in protecting the needs of wildlife (e.g. nests, tree protectors, wildlife escape ramps)  
B. Remove vertical vegetation or structures to improve escape cover or use of habitat by wildlife.  

<table>
<thead>
<tr>
<th>Accomplishment Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>structures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>acres</td>
</tr>
</tbody>
</table>
New Mexico Administrative Code 19.34.6.11 states the expenditure of funds collected through the HSP shall be consistent with the land management plans that have been developed by the USFS, BLM, and NMDGF. “Existing” plans highlight the parts of the state that currently have environmental compliance documentation in place for habitat management activities, or those areas that have been identified as priority lands for wildlife management and/or habitat enhancement. “Proposed” plans are those that are currently in the environmental compliance development or review process.

**LANDSCAPE HABITAT IMPROVEMENT and/or LAND MANAGEMENT PLANS**

**BLM:**
**Existing:**
- Big Hatchet Mountains Habitat Management Plan (HMP)
- Alamo Hueco Mountains HMP
- Peloncillo Mountains HMP
- Robledo Mountains HMP
- Florida Mountians HMP
- San Simon Cienega HMP

**US Forest Service**
**Existing:**
- Slaughter Mesa
- Moraga
- Burro Analysis (Collins Park)
- Signal Peak
- Burro Mountains
- Trujillo Park
- Upper Mimbres Watershed
- Revised Coronado National Forest Management Plan
- Peloncillo (Environmental Management Area) EMA
- Area 74 / Indian Peaks

**Proposed:**
- Luna Planning Area
- Pueblo Park
- Georgetown

**New Mexico Department of Game and Fish**
**Proposed:**
- Centerfire Pronghorn Area
- T-Bar Pronghorn Corridor
- Double E Wildlife Management Area