Sensitive Plant Species Report for Gila National Forest

Travel Management Rule Implementation

DEIS

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Introduction

The specialist's report is a discussion of effects related to implementation of the proposed action or alternatives that are selected for the Gila National Forest Travel Management Project. Analysis for effects of motorized travel within areas of sensitive plants was conducted using GIS analysis, data and data sources that were put into road and vegetation layers to identify corridors through Sensitive Plant habitat. Sensitive Plant occurrences include all sites reported on the Gila National Forest. The majority of the data collected was acquired from the Natural Heritage New Mexico (NHNM) database, as well as, herbarium specimens from databases such as the New Mexico Biodiversity Collections Consortium (NMBCC). The only spatial data the forest had was a spreadsheet with legal locations to the section level of plant observations. Very few species have had comprehensive surveys conducted and the analysis was done based upon records available. Literature searches were conducted to determine the effects of motorized travel, dispersed camping and/or access may have upon each sensitive species. Indicators used to measure impacts to designated plants are route miles and corridor acres within the 6th code watershed that are within the habitat types where these designated plants have been recorded or found.

Compliance with the Forest Plan and other Regulatory Direction

The Forest Plan future desired conditions states "monitor management practices within occupied and potential habitat of plants listed as threatened, endangered or on the Regional Forester's Sensitive Plant list. Manage sensitive species to sustain viability and prevent the need for Listing as threatened or endangered" (1982 Planning Rule) (36 CFR 219). In addition, the Forest Service Manual (FSM 2670.32) directs the need to:

1. Assist states in achieving their goals for conservation of endemic species.

2. Review programs and activities as part of the National Environmental Policy Act of 1969 process through a biological evaluation, to determine their potential effect on sensitive species.

3. Avoid or minimize impacts to species whose viability has been identified as a concern.

4. Analyze, if impacts cannot be avoided, the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.

5. Establish management objectives in cooperation with the states when projects on National Forest System lands may have a significant effect on sensitive species population numbers or distributions. Establish objectives for federal candidate species, in cooperation with the FWS or NOAA Fisheries and the states.

Many of the species that are on the Regional Forester Sensitive Species list have viability concerns for the following reasons:

- Loss or degradation of suitable habitat (for both terrestrial and aquatic species).

- The species is at the edge of its range.

- Little is known about the species and prudence dictates that the species be protected until more is

known about the viability of the species.

- Excessive harvest/exploitation or persecution.
- Disease or interactions with non-native species.

- Combination of the aforementioned factors.

This Sensitive Species Plant Specialist report is based upon literature review (including the Gila National Forest Plan, as amended), Forest data, as well as a field assessment of habitat conditions. The techniques and methodologies used in this analysis consider the best available science. The analysis includes a summary of credible scientific evidence which is relevant to evaluating reasonably foreseeable impacts. The analysis also identifies methods used and references the scientific sources relied on. The conclusions are based on scientific analysis that after thorough review of relevant scientific information.

EXISTING CONDITION

For this analysis, acres of suitable habitat within vegetation types were used to determine the effects of Motorized Dispersed Camping (MDC) and cross-country motorized travel including Motorized Big Game Retrieval. The number of OHV users has grown substantially in the last two decades. Some of these routes are causing natural resource damage throughout the forest. The development of unauthorized routes is continuous and difficult to accurately measure. Since unauthorized routes are not engineered or analyzed, direct habitat damage occurs such as soil disturbance which can result in decreased vegetation cover and density. As soil compacts and erodes, roots can be exposed and eventually killed which can then lead to the establishment of weed species (Joslin and Youmans 1999). Loss of vegetation cover increases exposure of soil to wind and water erosion which reduces the ability of plants to reestablish an area. These effects can last decades or even centuries (Joslin and Youmans 1999). Plants are also vulnerable to direct damage from OHV by crushing, shearing and uprooting which can change plant characteristics by reducing flower and seed production and carbohydrate reserves which inhibits a plant to grow (Cole and Landres 1995). Motorized routes can create an edge habitat that promotes non-native encroachment and invasive plant species (Ouren et al. 2007, Watkins et al. 2003).

There is limited information associated with the plant species discussed in this document both range wide and site specific for the Gila National Forest. Global and state population rankings were used when available to identify the overall status of the species. The proliferation of unauthorized routes indicate increasing motorized intrusions into areas that previously had no motorized disturbances and that provided undisturbed habitat.

AFFECTED ENVIRONMENT

Region 3 Regional Forester's Sensitive Plant Species

There are currently no plant species that occur within the Gila National Forest that are Threatened, Endangered, Proposed or Species of concern. The Regional Forester's Sensitive Plant species includes twenty two species that have the potential to occur within the Gila National Forest.

Designated sensitive plant species are identified as species for which population viability is a concern as evidenced by current or predicted downward trends in population numbers, density or habitat (FSM 2670.5). The Forest Service must implement management practices that ensure sensitive species do not become threatened or endangered and must implement management objectives for populations or habitat of sensitive species (FSM 2670.22)

Plant species that are expected or known to occur on the Gila National Forest are listed in the table below (Table 1). The list was last updated September of 2007.

Table 1

Scientific Name	Common Name	Habitat Association	Reported Occurrences	Present in Analysis area
Adenophyllum wrightii var. wrightii	**Wright's Dogweed**	Drainages within PJ woodlands (sandy/silty soils)	Pinos Altos Range; Grant County; 3 occurrence records on Gila from Wilderness R.D. and Silver City R.D.	**Yes**
Allium gooddingi Ownbey	**Goodding's Onion**	Mixed Conifer and Spruce Fir Zones, generally in north trending drainages	Occurrence records on D3, D4, D5 and D6, but also has the potential to occur on D2 and D7.	**Yes**
Anticlea mogollonensis	**Mogollon Death Camas**	Understory of upper montane and subalpine coniferous forest. Often found with Aspen.	Most of its range within Gila Wilderness, around the area of White Water Baldy.	**Yes**
Asclepias uncialis uncialis	**Greene Milkweed**	yucca grasslands with scattered Juniper trees	No occurrence records on the Forest. Two occurrence records north of Silver City on private land.	**NO**
Astragalus humistratus var. crispulus	**Villous Groundcover Milkvetch**	Pine Forest on slopes, benches, and ledges. Vegetated Road Banks.	Occurrence record from Quemado RD, and private land adjacent to Quemado RD. No other occurrence records on Gila.	**Yes**

Cirsium gilense	**Gila Thistle**	Moist mountain meadows in coniferous forests.	Two occurrence records on the Forest. One on D4 within the wilderness, and one on D6 outside of wilderness.	**Yes**
Crataegus wootoniana	**Wooton's Hawthorn**	Canyon bottoms and forest understory in lower montane coniferous forests	Occurrence records for Grant and Catron counties on D4, D5, and D7. Populations occur on the Forest in Cherry Cr. And Telephone Canyon within the Pinos Altos Mtn Range.	**Yes**
Cypripedium parviflorum pubescens	**Yellow Lady's Slipper**	Mid to high elevation riparian (50 to 100 yards from water in nearly full sunlight). Seeps. Fir, Aspen, and Pine Forest in full sunlight. Mesic slopes up to 60 degrees.	Occurrence records for Grant County within the Gila Wilderness, on Little Cr. And Little Turkey Cr. Not doc. Outside of wilderness.	**Yes**
Hieracium fendleri var. mogollense	**Mogollon Hawkweed**	Understory plant in montane coniferous forest.	Catron County; No known occurrence records on the Gila NF.	**NO**
Desmodium metcalfei	**Metcalfe's Tick – Trefoil**	Rocky slopes, in canyons, and in ditches within oak/piñon-juniper woodlands/grasslands	Historically, in Grant and Sierra Counties in Cabello watershed. No recent occurance records.	**NO**
Erigeron hessii	**Hess' Fleabane**	Grows from bedrock cracks in open areas in upper montane to subalpine conifer forests.	All known populations are within the Gila Wilderness, area of White Water Baldy	**Yes**
Hexalectris spicata var. arizonica	**Arizona Coralroot**	Heavy leaf litter under the drip line of the oaks, pines, and Junipers. Canyon	Hidalgo, and Sierra Counties. No known occurrence	**NO**

		bottoms and wooded canyon sides most commonly over limestone.	records on the Gila NF.	
Hieracium abscissum ***H. rusbyi***	**Rusby Hawkweed**	Mixed Conifer Forest. Associated genera and species include: *Pinus* (pine), *Alnus* (alder), *Quercus* spp. (oak), and *Juniperus deppeana* (alligator juniper	Occurrence record all on D2, 1 record in Wilderness and 1 record outside (around Hoyt Cr. and Indian Cr. NM Rare plant Consortium list Sierra and Catron as counties with the species.	**Yes**
Packera cardamine ***Scenecio cardamine***	**Heartleaf Groundsel**	Understory of late seral spruce-fir	Mogollon Mountains of Catron County. 9 occurrence records on Gila. More specifically all east of the Silver Creek Divide, south of Bursum around the area of trail 182.	**Yes**
Penstemon linarioides ssp.maguirei	**Maguire's Beardtongue**	Limestone cliffs in piñon-juniper woodlands.	Not seen in NM in over 100 yrs. Mining was cited as threat to the only known population in AZ.	**No, Hasn't been documented in over 100 years. No Impact for the species.**
Penstemon metcalfei	**Metcalfe's Penstemon**	Mixed Conifer & Spruce Fir - All stages.	13 occurrence records on Gila primarily on D2 in remote areas, one record on D5.	**Yes**
Pteryxia davidsonii	**Davidson's Cliff Carrot**	Moist rocky areas seem to be important to this species. This species has been documented to occur on sheer cliffs; in rocky, damp, drainages; and mountain sides. The literature also	Grant and Catron counties. 1 pre-1970 record in the Gila NF files, at 4880 ft in a Gray Oak dominated W. facing slope adj. to a trib to Mangus Cr.	**Yes**

		documents that the species grows in wet areas (potentially wetlands, seeps, springs, and riparian areas).		
Rumex orthoneurus	**Blumer's Dock**	Middle to high elevation wetlands with moist, organic soil adjacent to perennial springs or streams in canyons or meadow situations.	Has been documented in Grant and Catron counties on the Forest; and probably occurs on all RD.	**Yes**
Scrophularia macrantha	**Mimbres Figwort**	Typically steep, rocky, usually north facing igneous cliffs and talus slopes.	35 occurrence records on Gila, all flow into the Mimbres Watershed. Noonday, Railroad, and Upper Gallinas canyons. These occurrences' are on both the Silver City and Wilderness Ranger Districts.	**Yes**
Stellaria porsildii	**Porsild's Starwort**	Mixed conifer and aspen forests.	Pinos Altos Mountains of NM, Grant County. On Gila occurs just below Signal Peak on a western facing slope on D7.	**Yes**
Talinum humile	**Pinos Altos Flame Flower**	Madrean grassland, oak woodland, pinyon-oak woodland or pinyon-juniper woodland.	Grant and Hidalgo counties in NM. 6 occurrence records on Gila. Cherry Creek, beartooth drainages on the Silver City Ranger District; and Noonday drainage on the Wilderness Ranger District.	**Yes**

Trifolium longipes spp. Neurophyllum	**Mogollon Clover**	Riparian zones in mixed conifer forest. High elevation permanently wet meadows along streams, and springs.	Catron County NM; documented on the Black Range, Quemado, Glenwood, Wilderness, and Reserve Ranger Districts.	**Yes**

Wright's Dogweed (*Adenophyllum wrightii var. wrightii)*

Biological Requirements: This species occurs within pinion-juniper woodlands at elevations ranging from 7,000-7,200 feet in New Mexico. Species is found in sandy or silty soils and drainages.

Trend and Potential Occurrence: This plant was formerly known from a few very old collections made near the Santa Rita copper mines and in the Black Range, New Mexico, near Springerville, Arizona, and in Chihuahua, Mexico. It was rediscovered in New Mexico in 1999 in the same general area as plants collected in 1880. The rediscovered populations are healthy and plants appear to be reproducing normally. During the abnormally wet summer of 2006, numerous populations of this plant were discovered in Grant and Sierra counties, New Mexico. It is now considered to be common within its range in New Mexico (NMRP). In 2007 populations of this species were also found in Chihuahua, Mexico. Photos were also taken of this species on September 10, 2008 by Russ Kleinman on the Georgetown Road on the Pinos Altos range (GilaFlora 2008). This species is a R3 sensitive species for the USFS and a species of concern for the USFWS. Its ranking globally is under consideration.

Goodding's Onion (*Allium gooddingi Ownbey)*

Biological Requirements: Gooddings onion occurs within mixed conifer and spruce-fir zones, generally in north-trending drainages at elevations ranging from 7,500 to 11,250 feet. Most sites are shaded to varying degrees, on slopes or in drainages or narrow canyons, and are usually in either primary or secondary stream courses. Soils which support this species are basaltic or rhyolitic with the upper horizon comprised of loamy alluvium with a high organic content (AZ FWS 1997).

Trend and Potential Occurrence: This species range stretches from the White Mountains of Arizona to the Mogollon Mountains of New Mexico. There are also three isolated locations: the Santa Catalina Mountains of southern Arizona, near Sierra Blanca Peak in southern New Mexico, and the Chuska Mountains that straddle the Arizona/New Mexico border. Most of these sites are on national forest land with a few on Indian reservation land. Bearwallow Mountain, Gilita Creek, Indian Creek, and Little Turkey Creek are a few of the areas with records of this species on the Gila National Forest. Due in part to the success of a goodding's onion conservation agreement and management actions between agencies this species was removed from the

candidate list for federal protection in 2000. It is now a R3 Sensitive species for the USFS, but holds the G4 ranking nationally which is *apparently secure* (CPC 2007).

Mogollon Death Camas (*Anticlea mogollonensis)*

Biological Requirements: This species is often found within aspen and occurs at elevations ranging from 8,700-10,500 feet. Species is found in organic soils in understory of upper montane and subalpine coniferous forests.

Trend and Potential Occurrence: Mogollon death camas is known only from the Mogollon Mountains in the area of White Water Baldy and adjacent peaks. Most of its range is within the northwest corner of the Gila Wilderness where it is a common and often abundant forest understory species. *Anticlea mogollonensis* was photographed along Bursum road in Catron County in August of 2008 and again in August of 2009 (Sivinski 2009). This species is listed as a species of concern for both the USFWS and the state of NM. It is a R3 sensitive species for the USFS and is ranked at G3 globally (NMRP 2009).

Greene Milkweed (*Asclepias uncialis uncialis)*

Biological Requirements: The milkweed is primarily associated with species typical of shortgrass prairie ranging from 3,920-7,640 feet. Associated vegetation is comprised mostly of grasses (grama), with forbs, and shrubs; with trees (juniper) typically comprising less than 15% of the total vegetation cover (NatureServe 2009 and Decker 2006). Plants are found on plains, open hills, or low slopes. Typically they are found growing in open spaces (base soil) between bunch grasses. Species is not restricted to a particular soil type but are most often found in sandy loam and dry warm soils (Nature Serve 2009 and Decker 2006).

Trend and Potential Occurrence: There are various small populations of this species throughout its range of CO, AZ, and NM. Greene milkweed was documented in two locations north of Silver City, NM in 1992. These locations were on private yucca grasslands with scattered Juniper trees (Decker 2006). The global status of this species is G3 vulnerable.

Villous Groundcover Milkvetch (*Astragalus humistratus var. crispulus)*

Biological Requirements: This species is found within slopes, benches, and ledges in xeric pine forest. **It also occurs in open vegetated road banks (NMRP 1999).** Species is found in sandy soils of volcanic origin.

Trend and Potential Occurrence: *Astragalus humistratus* var. *crispulus* is known only from Catron County in New Mexico and southeastern Apache County in Arizona on one watershed. It is a species of concern for the USFWS and for the state of NM. It is listed as a R3 sensitive species for the USFS (NMRP 2009). Globally it is ranked T3; vulnerable (Natureserve 2009).

Gila Thistle (*Cirsium gilense)*

Biological Requirements: This species prefers moist mountain meadows in coniferous forests at elevations ranging from 7,000 to 8,000 feet. The boundaries of this species range are unknown at this time. Species is often found within disturbed areas.

Trend and Potential Occurrence: *Cirsium gilense* is listed as a Species of Concern for both the USFWS and the State of NM. It is also a R3 Sensitive species for the USFS. Its global ranking is G3G5Q; Vulnerable-Secure with questionable taxonomy (NMRP 1999). Gila Thistle is found in Catron County, New Mexico and in the adjacent White Mountains of Arizona. It is thought to be possibly extirpated (Natureserve 2009). Natureserve data shows this plant once occurring in the Upper Gila and San Francisco watersheds.

Wooton's Hawthorn (*Crataegus wootoniana)*

Biological Requirements: Wooton's Hawthorn occurs mainly in canyon bottoms and forest understory in lower montane coniferous forests at elevations ranging from 6,500-8,000 feet.

Trend and Potential Occurrence: Range of the species includes Catron, Grant and Lincoln counties in New Mexico. On the Gila National Forest documented populations include Cherry Creek, and Telephone Canyon, both of which are on the Pinos Altos Range. These specimens were documented in 1999 and 1997 respectively (NHNM 2008).

Yellow Lady's Slipper (*Cypripedium parviflorum pubescens*)

Biological Requirements: The slipper grows in moderate shade to nearly full sun in fir, pine and aspen forests at elevations ranging from 6,000 to 9,500 feet in elevation (Mergen 2006 and Coleman 2002). It most often grows just above the banks of streams, usually 50-100 yards from water. Grows on mesic slopes up to 60 degrees; facing east to northeast and covered with lush growth less than a foot tall. It is often associated with blue berries (*Vaccinium* spp.), shooting stars (*Dodecatheon* spp.) and several species of daises. *Lilium* spp are often found in the same area (Coleman 2002). *Cypripedium* habitat also includes dripping seeps on steep to moderate sloped canyon walls where the soil is saturated (Coleman 2002). The seeps are surrounded by pine and fir but the plants are in full sun much of the day.

Trend and Potential Occurrence: This is a species of concern for the USFWS, an endangered species for the State of NM, and a Sensitive species for the USFS. This species is only known in two locations on the Gila National Forest. These locations are Little Creek and Little Turkey Creek within the Gila Wilderness, Grant County, NM (NHNM 2008).

Mogollon Hawkweed (*Hieracium fendleri var. mogollense)*

Biological Requirements: No information was located related to the elevational range for this species. This plant has been collected only a few times and much about it is uncertain. The habitat requirements are possibly similar to *Hieracium fendleri,* which is an understory plant in montane coniferous forest (NM Rare Plants, 1999).

Trend and Potential Occurrence: Mogollon Hawkweed has a heritage global status of G5T3 (vulnerable). This species is a Forest Service Region 3 sensitive species for the Apache-Sitgraves and Gila National Forests. It is currently only known from Catron County, NM and Apache County, AZ. No site specific location information was found for Mogollon Hawkweed so it is unknown where on the Gila National Forest this species occurs.

Metcalfe's Tick-Trefoil (*Desmodium metcalfei)*

Biological Requirements: Metcalfe's Tick-Trefoil grows on rocky slopes, in canyons, and in ditches within oak/piñon-juniper woodlands/grasslands at elevations ranging from 4,000-6,500 feet.

Trend and Potential Occurrence: *Desmodium metcalfei* has a global rank of G3; vulnerable. It is a Species of Concern for both the USFWS and the State of NM. It is also listed as a R3 Sensitive species by the USFS. Specific location distribution information for this species is not available. Records show it once known in Grant and Sierra counties (Caballo watershed) in New Mexico and Cochise, Gila, Pinal, and Santa Cruz counties of Arizona (NMRP 1999). It is also found in adjacent Sinaloa County in Mexico (Natureserve 2009; NMRP 1999).

Hess' Fleabane (*Erigeron hessii)*

Biological Requirements: Hess' fleabane grows from bedrock cracks in open areas in upper montane to subalpine conifer forests at elevations ranging from 9,500-10,200 feet (NMRP 2009).

Trend and Potential Occurrence: Hess' fleabane is ranked G1 (imperiled) globally, *endangered* by the state of NM, and *sensitive* on the Gila National Forest, NM. It is considered a *species of concern* by the USFWS (NMRP 2009).**Only two populations known in the area of Whitewater Baldy in the Gila Wilderness of the Gila National Forest, Southwest New Mexico.** Each population consists of only a few hundred plants (NMRP 2009).

Arizona Coralroot (*Hexalectris spicata var. arizonica)*

Biological Requirements: Typically this species grows in heavy leaf litter under the drip line of the oaks, pines, and Junipers at elevations ranging from 3,480 to 6,950 feet. They are adaptable to a wide range of lighting conditions but are usually not out in the open. They are also found in canyon bottoms and wooded canyon sides most commonly over limestone.

Trend and Potential Occurrence: Arizona coralroot is listed as *endangered* by the state of New Mexico and as a *Species of Concern* by the USFWS. It is a sensitive species on the Gila National Forest of NM, but its global rank is G5 (secure). New Mexico counties with records of this species include Doña Ana, Hidalgo, Otero, and Sierra. It is also found in AZ and TX. It is also found in Coahuila, Mexico (NMRP 2009).

Rusby Hawkweed (*Hieracium abscissum)* (*H. rusbyi*)

Biological Requirements: The Arizona Heritage Database documents that this species occurs at elevations ranging from 8,800 to 9,300 feet. This species habitat is described as high elevation areas within mixed conifer forests. Associated genera and species include: *Pinus* (pine), *Alnus* (alder), *Quercus* spp. (oak), and *Juniperus deppeana* (alligator juniper).

Trend and Potential Occurrence: Rusby Hawkweed has a heritage global status of G2 (Imperiled), and is included as a Forest Service Region 3 sensitive species for the Coronado, and Gila National Forests. NatureServe reports that in the United States this species is endemic to southeastern Arizona and adjacent areas in New Mexico. The New Mexico Rare Plant database identifies that this species is too common in Mexico and Central America to qualify as a New Mexico rare plant. The Arizona Game and Fish Department Heritage database identifies that in Arizona this species is currently known from Cochise, and Graham counties. New Mexico Biodiversity Collections Consortium identifies that this hawkweed occurs in Catron, and Sierra counties, New Mexico. The Southwest Region of the Forest Service Regional Foresters Sensitive Species list also identifies that this species occurs in Grant County, New Mexico. On the Gila National Forest species account records document this species along Forest Trail 40, on a switchback leading into Hoyt Creek (T11S, R10W, Sec.35), and in Indian Creek Canyon, 20 miles north of Mogollon. Both locations are on the Black Range Ranger District. We currently do not have any information on locations in Grant County (AZG&F, 2004; NatureServe, 1996; and NM Biodiversity, 2009).

Heartleaf Groundsel (*Packera cardamine) (= Scenecio cardamine)*

Biological Requirements: The occurrence records document that this species is found at elevations ranging from 8,000 – 10,600 feet. This plant occurs in the understory of climax spruce-fir forest. Populations typically occur on inaccessible steep slopes in small and sporadic groups, but not infrequent in suitable habitat.

Trend and Potential Occurrence: This species has only been found in relatively small geographical area of southwest New Mexico and in an adjacent county in Arizona. In New Mexico the species is reported to occur in the Mogollon Mountains of Catron County. The species has been reported from the White Mountains in Greenlee County, AZ. Natureserve document this species in the Upper Gila (15040001) and San Francisco (15040004) watersheds. A New Mexico biodiversity collection consortium search located 9 occurrence records on the Forest. More specifically all occurrence records are east of the Silver Creek Divide, south of Bursum around the area of trail 182 on the Wilderness Ranger District of the Gila National Forest. This species also has the potential to occur on the Reserve Ranger District around the Willow Creek area, and on the Glenwood Ranger District close to the Silver Creek Divide.

Maguire's Beardtongue (*Penstemon linarioides ssp.maguirei)*

Biological Requirements: Limestone cliffs and rocky hillsides in piñon-juniper woodlands seem to be the important habitat characteristics. The Arizona Heritage records document that this species occurs at elevations ranging from 6,000 – 6,500 feet, associated with Great Basin Conifer Woodland communities. The plant species it is associated with include: *Agave parryi* (Parry's agave), *Brickellia venosa* (veined brickell-bush), *Carphochaete bigelovii* (Bigelow's bristle-head), *Cercocarpus montanus* (Colorado birch-leaved mountain mahogany), *Dasylirion wheeleri* (spoonflower), *Ericameria laricifolia* turpentine-bush), *Eriodictyon angustifolium* (narrowleaf yerba santa), *Eriogonum wrightii* (Wright's wild buckwheat), *Erysimum capitatum* (western wallflower), *Gutierrezia sarothrae* (broom snakeweed), *Muhlenbergia emersleyi* (bullgrass), *Nolina microcarpa* (sacahuista bear-grass), *Pinus cembroides* (Mexican pinyon), *Pinus edulis* (two-needle piñon pine), *Pinus monophylla* (single-leaf pine), and *Quercus turbinella* (shrub live oak) (AZG&F, 2004).
"More searches are needed to determine the distribution, abundance and habitat needs of this taxon (NM Rare Plants, 1999)."

The Arizona Heritage records also indicate that the most resent records document this species on south-facing slopes and mineral rich soils. Areas with these habitat characteristics in the Gila River Valley in Grant Count, New Mexico and Greenlee County, AZ may contain habitat.

Trend and Potential Occurrence: This plant has not been seen in New Mexico in over 100 years (AZG&F, 2004). This taxon has only been collected five times, first in Grant County, NM and the more recent four collections come from Greenlee County, AZ (AZG&F, 2004). In both states the occurrence records are in or near the Gila River Valley (NM Rare Plants, 1999). The limited habitat information on this species indicates that on the Forest Maguire's beardtongue has the potential to occur in areas with limestone cliffs in piñon-juniper woodlands.

Metcalfe's Penstemon (*Penstemon metcalfei)*

Biological Requirements: Presently this species is documented to occur at elevations ranging from 6,600 – 9,500 feet. This penstemon is typically associated with cliff or steep slope north-facing habitat, but can be found in east-facing slopes and canyon bottoms; in Rocky Mountain lower and upper montane coniferous forest (NMBCC, 2009).

Trend and Potential Occurrence: Metcalfe's Penstemon is considered endemic to southwest New Mexico (NatureServe, 2000). The New Mexico Biodiversity Collections Consortium (NMBCC) database identifies 13 occurrence records for this species. This species has only been found in the Black Range \ of the Gila National Forest, primarily in Sierra County, NM but there is also one occurrence record in Grant County, NM. The Sierra County occurrence records are from Trujillo, Middle Percha, and Percha canyons on the Black Range Ranger District of the Gila National Forest. The one occurrence record in Grant County is at the head of Quaking Aspen Canyon. This last occurrence record is located on the Wilderness Ranger District.

Davidson's Cliff Carrot (*Pteryxia davidsonii)*

Biological Requirements: The Arizona Heritage records document that this species occurs at elevations ranging from 6,500 – 8,000 feet. The plant community it has been associated with include: California Brickell-bush (*Brickellia californica*), Colorado Birch-leaved Mountain – mahogany (*Cercocarpus montanus*), Arizona beardtongue (*Penstemon pinifolius*), Cane prickly-pear (*Opuntia spinosior*), Arizona rockdaisy (*Perityle coronopifolia*), Pinyon pine sp., Muttongrass (*Poa fendleriana*), Silver-leaf oak (*Quercus hypoleuoides*), Net-leaf oak (*Quercus reticulate*), and Fleshy-fruit Yucca (*Yucca baccata*).

Moist rocky areas seem to be important to this species. This species has been documented to occur on sheer cliffs; in rocky, damp, drainages; and mountain sides. The literature documents that the species grows in wet areas (potentially wetlands, seeps, springs, and riparian areas).

Trend and Potential Occurrence: This species has only been found in relatively small geographical area of southwest New Mexico and in an adjacent county in Arizona. In New Mexico the species is reported to occur in Socorro, Catron, and Grant counties. The species has also been reported from Greenlee County, AZ. Pteryxia davidsonii has been rarely collected or reported. NatureServe estimates the occurrences records at 6-20. Heritage records document this species in the Upper Gila-Mangas (15040002) and San Francisco (15040004) watersheds. More specifically heritage records document this species adjacent to Silver Creek and in the headwaters

of Spring Canyon on Bear Mountain on the Gila National Forest. Forest records also indicate that pre – 1970 this species was also found in a small tributary to Mangus Creek in the northeast corner of the Burro Mountains. The Bear Mountain and Mangus Creek locations are on the Silver City Ranger District of the Gila National Forest in Grant County, NM. The Silver Creek location is on the Glenwood Ranger District of the Gila National Forest in Catron County, NM.

Blumer's Dock (Chiricahua dock) *Rumex orthoneurus*

Biological Requirements: The Arizona Heritage Data Base documents that this species occurs at elevations ranging from 4,480 to 9,660 feet. This species habitat is described as middle to high elevation wetlands with moist, organic soil adjacent to perennial springs or streams in canyons or meadow situations. It has been suggested that this species is intolerant of shading and is a poor competitor with other species in its habitat. However, at some sites the plant seems to grow in deep shaded canyons (AZF&G 2004; and NatureServe, 1996).

Trend and Potential Occurrence: Blumer's dock has a heritage global status of G3 (vulnerable), and is included as a Forest Service Region 3 sensitive species for the Apache-Sitgraves, Coconino, Coronado, Tonto, Carson, Lincoln, Santa Fe, and Gila National Forests. NatureServe reports that this species is more common than previously thought. *Rumex orthoneurus* was proposed for federal listing in 1987, but genetic studies and surveys resolved some taxonomic questions, showing that this species had a much larger distribution than previously thought. In the United States this species is currently known to occur in Arizona at Apache, Cochise, Coconino, and Gila counties, and in New Mexico at Catron, Mora, Otero, San Miguel, and Taos counties. On the Gila National Forest species account records document this species in Willow, Indian, and Gilita Creek on the Reserve Ranger District, Pueblo Creek on the Glenwood Ranger District, and in the headwaters of Little Creek on the Wilderness Ranger District. This author has also noted this species in Turkey Run on the Black Range Ranger District and in the upper reaches of the West Fork of the Gila River on the Wilderness Ranger District. This species probably also occurs on the Silver City and Quemado Ranger Districts of the Gila National Forest, but observers have just failed to report its occurrence (AZF&G 2004; and NatureServe, 1996).

Mimbres Figwort (*Scrophularia macrantha)*

Biological Requirements: Presently this species is documented to occur at elevations ranging from 6,500 – 8,200 feet (NM Rare Plant, 1999). Typically this species is associated with steep, rocky, usually north facing igneous cliffs and talus slopes. It is occasionally found in moist canyon bottoms, pinyon-juniper woodland and lower montane coniferous forest (NM Rare Plant, 1999) (NMBCC, 2009).

Trend and Potential Occurrence: Mimbres Figwort is considered endemic to southwest New Mexico (NatureServe, 2000). It has been documented in both Grant and Luna counties. The New Mexico Biodiversity Collections Consortium (NMBCC) database identifies 37 occurrence records for this species, occurring mainly in three areas on the Gila National Forest and two areas off the forest, all flow into the Mimbres Watershed. On the Gila this species has been documented in Noonday, Railroad, and Upper Gallinas canyons. These occurrences' are on both the Silver City and Wilderness Ranger Districts. Off the Gila the species occurs in the Cooks Peak and Kneeling Nun areas.

Porsild's Starwort (*Stellaria porsildii)*

Biological Requirements: This species is documented to occur at elevations ranging from 7,900 to 8,200 feet in shade and partially open understory vegetation of mixed conifer and aspen forests. This flower has also been documented occasionally scattered along roadsides with steep, loamy and rocky embankments. In Arizona, it is documented to occur at the edge of meadows in Madrean Montane Conifer Forest communities. Associated plants in New Mexico include: Frageria sp. (), *Lupinus* sp. (lupine), *Pinus* sp. (pine), *Populus tremuloides* (quaking aspen), *Pseudotsuga menziesii* (Douglas-fir), *Pteridium* sp. (fern), *Quercus* sp. (oak), *Robinia neomexicana* (New Mexico locust), *Senecio* sp. (groundsel), *Smilacina* (=*Maianthemum*) sp. (Solomon's-plume), *Vicia* sp. (vetch), and *Viola* sp. (violet) (AZGF, 2004).

Trend and Potential Occurrence: *Stellaria porsildii* has a heritage global status of G1 (critically imperiled). This species is also a Forest Service Region 3 sensitive species for the Coronado and Gila National Forests. A fairly recently described species, known only from the Chiricahua Mountains of Arizona and the Pinos Altos Mountains of New Mexico. In New Mexico this species occurs in Grant County, and in Arizona in Cochise County. On the Gila National Forest this species occurs just below Signal Peak on a western facing slope on the Silver City Ranger District.

Pinos Altos Flame Flower (*Talinum humile)*

Biological Requirements: Most location records document that this species occurs at elevations ranging from 5,000 to 6,000 feet. NatureServe documents that this species is located on rocky south facing slopes at about 7,000 ft. in elevation. The Arizona Game and Fish Heritage Data Management System documents an elevation range of 6,000 – 8,000 ft. for *Talinum humile.*

The plant communities this species is typically associated with are madrean grassland, oak woodland, pinyon-oak woodland or pinyon-juniper woodland, often with *Nolina micorarpa* and *Agave parryii* (AZGF, 2004; NM Rare Plants, 2002; and NatureServe, 1197). The substrate this flame flower occurs in has been described as shallow, coarse, rhyolictic soil terraces overlying bedrock, where it is free from competition from other perennial plants; or in pockets of soil that accumulate among rhyolite boulders and outcrops (AZGF, 2004; and NM Rare Plants, 2002).

Trend and Potential Occurrence: Pinos Altos Flame Flower has a heritage global status of G2 (imperiled), and is included as a Forest Service Region 3 sensitive species for the Coronado and Gila National Forests. NatureServe reports that this species was once common, but it is now becoming rare. In the United States this species is currently only known to occur in New Mexico at Grant and Hidalgo counties and in Arizona at Santa Cruz County. NatureServe identifies seven occurrences for this species in New Mexico six of which occur on the Gila National Forest. The Arizona Game and Fish heritage database identifies two occurrence records in Arizona, and several localities in Durango and western Chihuahua, Mexico. *Talinum humile* has been documented in the Cherry Creek and Beartooth drainages on the Silver City Ranger District; and Noonday drainage on the Wilderness Ranger District.

Mogollon Clover (*Trifolium longipes spp. Neurophyllum* (= *T. neurophyllum*)

Biological Requirements: The location records document that this species can occur at elevations ranging from 6,500 – 9,000 feet. The plant community this species is typically associated with is riparian zones in mixed conifer forest. This species preferred habitat is high elevation permanently wet meadows along streams, and springs. However, several individuals in Arizona have been found in relatively dry conditions under a ponderosa pine canopy (AZGF, 2002).

Trend and Potential Occurrence: Mogollon Clover has a heritage global status of G2 (imperiled), and is included as a Forest Service Region 3 sensitive species for the Apache-Sitgraves and Gila National Forests. This species is currently only known to occur in Catron County, NM and in Arizona at Greenlee and Apache counties. Natureserve document this species in the San Francisco (15040004), Carrizo Wash (15020003), and Black (15060101) watersheds. Currently, this species occurs in approximately 19 locations in Arizona, and 20 in New Mexico (NM Rare Plants, 1999 and AZGF, 2002). Prior to the introduction of large numbers of livestock in the early 1900s this species if thought to have been far more abundant (NatureServe, 2003). In New Mexico one relative large population is known to have been extirpated. This species has potential habitat on all of the Ranger Districts on the Gila National Forest, and has been documented on the Black Range, Quemado, Glenwood, Wilderness, and Reserve Ranger Districts.

Effects on Alternatives

The locations that were mapped for Rusby Hawkweed and Mogollon Death Camas are within the Gila Wilderness; the Greene Milkweed is located within private property. There were no specific locations found for Mogollon Hawkweed, Metcalfe's Tick-Trefoil and Arizona Coralroot within the Gila National Forest.

Wright's Dogweed (Adenophyllum wrightii -- ADWR) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	50,449.26	-48,911.42	-49,423.14	-50,449.26	-48,911.42	-48,911.42
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-96.95%	-97.97%	-100.00%	-96.95%	-96.95%
Motorized Big Game Retrieval	**Acres**	50,449.26	-13,539.11	-49,423.14	-50,449.26	-28,229.05	-48,911.42
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-26.84%	-97.97%	-100.00%	-55.96%	-96.95%

Goodding's Onion (Allium gooddingii -- ALGO) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	186,881.30	-177,169.37	-179,822.93	-186,881.30	-177,374.30	-178,565.46
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-94.80%	-96.22%	-100.00%	-94.91%	-95.55%
Motorized Big Game Retrieval	**Acres**	50,449.26	-13,539.11	-49,423.14	-50,449.26	-28,229.05	-48,911.42
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-26.84%	-97.97%	-100.00%	-55.96%	-96.95%

Villous Groundcover Milkvetch (Astragalus humistratus crispulus -- ASHUC) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	40,241.71	-38,118.10	-38,416.92	-40,241.71	-38,418.37	-38,416.92
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-94.72%	-95.47%	-100.00%	-95.47%	-95.47%
Motorized Big Game Retrieval	**Acres**	40,241.71	-428.31	-38,416.92	-40,241.71	-8,697.81	-38,416.92
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-1.06%	-95.47%	-100.00%	-21.61%	-95.47%

Gila Thistle (Cirsium gilense -- CIGI) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	21,540.46	-20,490.51	-21,001.84	-21,540.46	-20,325.59	-20,490.52
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-95.13%	-97.50%	-100.00%	-94.36%	-95.13%
Motorized Big Game Retrieval	**Acres**	21,540.46	-1,461.67	-21,001.84	-21,540.46	-4,166.23	-20,490.52
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-6.79%	-97.50%	-100.00%	-19.34%	-95.13%

Wooton's Hawthorn (Crataegus wootoniana -- CRWO) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	47,459.93	-46,699.21	-46,781.41	-47,459.93	-46,699.21	-46,699.21
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-98.40%	-98.57%	-100.00%	-98.40%	-98.40%
Motorized Big Game Retrieval	**Acres**	47,459.93	-14,557.53	-46,781.41	-47,459.93	-33,556.41	-46,699.21
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-30.67%	-98.57%	-100.00%	-70.70%	-98.40%

Yellow Lady's-slipper (Cypripedium parviflorum pubescens) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	1,453.36	-1,403.09	-1,426.09	-1,453.36	-1,426.09	-1,426.09
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-96.54%	-98.12%	-100.00%	-98.12%	-98.12%
Motorized Big Game Retrieval	**Acres**	1,453.36	0.00	-1,426.09	-1,453.36	-23.61	-1,426.09
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		0.00%	-98.12%	-100.00%	-1.62%	-98.12%

Hess's Fleabane (Erigeron hessii -- ERHE9) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	21,540.46	-20,490.51	-21,001.84	-21,540.46	-20,325.59	-20,490.52
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-95.13%	-97.50%	-100.00%	-94.36%	-95.13%
Motorized Big Game Retrieval	**Acres**	21,540.46	-1,461.67	-21,001.84	-21,540.46	-4,166.23	-20,490.52
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-6.79%	-97.50%	-100.00%	-19.34%	-95.13%

Heartleaf Groundsel (Packera cardamine -- PACA34) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	50,476.18	-49,315.01	-49,874.62	-50,476.18	-49,150.09	-49,363.29
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-97.70%	-98.81%	-100.00%	-97.37%	-97.80%
Motorized Big Game Retrieval	**Acres**	50,476.18	-8,048.29	-49,874.62	-50,476.18	-18,806.85	-49,363.29
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-15.94%	-98.81%	-100.00%	-37.26%	-97.80%

Metcalfe's Penstemon (Penstemon metcalfei -- PEME15) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	62,860.68	-61,346.75	-61,703.59	-62,860.68	-61,346.75	-61,346.75
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-97.59%	-98.16%	-100.00%	-97.59%	-97.59%
Motorized Big Game Retrieval	**Acres**	62,860.68	-11,088.38	-61,703.59	-62,860.68	-32,920.20	-61,346.75
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-17.64%	-98.16%	-100.00%	-52.37%	-97.59%

Davidson's Cliff Carrot (Pteryxia davidsonii -- PTDA) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	46,981.86	-44,976.86	-45,371.70	-46,981.86	-44,976.86	-45,019.01
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-95.73%	-96.57%	-100.00%	-95.73%	-95.82%
Motorized Big Game Retrieval	**Acres**	46,981.86	-7,355.28	-45,371.70	-46,981.86	-19,202.26	-45,019.01
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-15.66%	-96.57%	-100.00%	-40.87%	-95.82%

Blumer's Dock (Rumex orthoneurus -- RUOR3) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	46,502.57	-44,327.42	-45,918.91	-46,502.57	-45,093.87	-45,341.63
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-95.32%	-98.74%	-100.00%	-96.97%	-97.50%
Motorized Big Game Retrieval	**Acres**	46,502.57	-7,092.17	-45,918.91	-46,502.57	-13,196.17	-45,341.63
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-15.25%	-98.74%	-100.00%	-28.38%	-97.50%

Mimbres Figwort (Scrophularia macrantha -- SCMA7) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	42,462.76	-41,719.90	-41,738.70	-42,462.76	-41,719.90	-41,719.90
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-98.25%	-98.29%	-100.00%	-98.25%	-98.25%
Motorized Big Game Retrieval	**Acres**	42,462.76	-21,929.34	-41,738.70	-42,462.76	-31,151.19	-41,719.90
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-51.64%	-98.29%	-100.00%	-73.36%	-98.25%

Porsild's Starwort (Stellaria porsildii -- STPO8) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	81,526.68	-79,733.68	-79,983.84	-81,526.68	-79,733.68	-79,733.68
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-97.80%	-98.11%	-100.00%	-97.80%	-97.80%
Motorized Big Game Retrieval	**Acres**	81,526.68	-20,429.68	-79,983.84	-81,526.68	-46,872.70	-79,733.68
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-25.06%	-98.11%	-100.00%	-57.49%	-97.80%

Pinos Altos Flameflower (Talinum humile -- PHHU3) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	56,497.56	-56,063.49	-56,077.34	-56,497.56	-56,063.49	-56,063.49
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-99.23%	-99.26%	-100.00%	-99.23%	-99.23%
Motorized Big Game Retrieval	**Acres**	56,497.56	-29,045.72	-56,077.34	-56,497.56	-43,489.39	-56,063.49
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-51.41%	-99.26%	-100.00%	-76.98%	-99.23%

Mogollon Clover (Trifolium longipes var. neurophyllum -- TRNE3) Effects Summary

		Existing Effects	Change in Effects				
		Alt. B (No Action)	Alt. C	Alt. D	Alt. E	Alt. F	Alt.G
Motorized Dispersed Camping	**Acres**	302,952.30	-282,608.06	-286,105.68	-302,952.30	-282,869.75	-284,485.32
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-93.28%	-94.44%	-100.00%	-93.37%	-93.90%
Motorized Big Game Retrieval	**Acres**	302,952.30	-10,982.20	-286,105.68	-302,952.30	-70,418.94	-284,485.32
Percent in Acres of Alt. B (Existing % Acres)	**Acres**		-3.63%	-94.44%	-100.00%	-23.24%	-93.90%

Alternative B - No Action Alternative

Direct and Indirect effects

The effects to sensitive plant species from motorized route density would remain the same or increase due to open cross country travel within the Gila National Forest. The effects to all species resulting from motorized route density would be similar to the other alternative listed below. The major difference in the alternatives would be the acres open to cross country travel; acres open to motorized dispersed camping and motorized big game retrieval. Direct impacts to sensitive plant species under this alternative include crushing and the loss of vegetative cover in areas where dispersed camping and motorized/cross-country travel occurs. Indirect effects such as soil erosion and compaction could affect plant habitat. User created routes would continue to increase throughout the forest with the potential to affect sensitive plant species.

Effects Determination: Alternative B May impact individual sensitive plant species, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Alternatives C,D,E,F and G

Direct and Indirect effects

Wright's Dogweed

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat of pinion/juniper with sandy or silty soils in which this species inhabits. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping (MDC), the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval (MBGR) would decrease the potential that Wright's Dogweed would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Wright's Dogweed, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Goodding's Onion

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat of mixed conifer and spruce-fir zones. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Goodding's Onion would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Goodding's Onion, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Mogollon Death Camas

This species is found within the Gila wilderness around White Water Baldy where motorized travel is prohibited. Motorized travel would have no impact to this species

Effects Determination: Alternatives C,D,E,F and G would have **No Impact** on the Mogollon Death Camas.

Villous Groundcover Milkvetch

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within xeric pine forest and open vegetated road banks. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Villous groundcover milkvetch would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Villous groundcover milkvetch, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Gila Thistle

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within coniferous forests in moist mountain meadows. It is thought that it could possibly be extirpated. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Gila Thistle would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Gila Thistle, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species

Wooton's Hawthorn

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within canyon bottoms in lower montane mixed coniferous forests. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Wooton's Hawthorn would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Wooton's Hawthorn, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Yellow Lady's Slipper

This species is found within the Gila Wilderness in Little Creek and Little Turkey Creek where motorized travel is prohibited. Motorized travel would have no impact to this species

Effects Determination: Alternatives C,D,E,F and G would have **No Impact** on the Yellow Lady's Slipper.

Hess' Fleabane

This species is found within the Gila Wilderness in the area of White Water Baldy where motorized travel is prohibited. Motorized travel would have no impact to this species.

Effects Determination: Alternatives C,D,E,F and G would have **No Impact** on the Hess' Fleabane.

Rusby Hawkweed

This species is found within the Gila wilderness where motorized travel is prohibited. Motorized travel would have no impact to this species

Effects Determination: Alternatives C,D,E,F and G would have **No Impact** on the Rusby Hawkweed.

Heartleaf Groundsel

This species is found within the Gila Wilderness in the area east of Silver Creek Divide within the Gila Wilderness. Given the location and habitat where this species is found, inaccessible steep slopes within spruce-fir forests, motorized access would not have any impacts to this species.

Effects Determination: Alternatives C,D,E,F and G would have **No Impact** on the Heartleaf Groundsel.

Metcalfe's Penstemon

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within canyon bottoms and east facing slopes. However, specimens have been taken on cliffs and or steep slopes on a north-facing aspect. Given the habitat where this species has been found, motorized access would have limited, if any impacts to the species. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Metcalfe's Penstemon would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Metcalfe's Penstemon, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Davidson's Cliff Carrot

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within moist rocky areas. This species has been documented to occur on sheer cliffs; in rocky, damp, drainages; and mountain sides. The literature documents that the species grows in wet areas (potentially wetlands, seeps, springs, and riparian areas). Given the habitat where this species has been found, motorized access would have limited, if any impacts to the species. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Davidson'd Cliff Carrot would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Davidson's Cliff Carrot, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Blumer's Dock

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within high elevation wetlands with moist, organic soil adjacent to perennial springs or streams in canyons or meadows. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Blumer's Dock would be impacted by motorized vehicles.

Effects Determination: Alternative E No impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Blumer's Dock, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Mimbres Figwort

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat. Given the habitat where this species is typically found, steep, rocky, usually north facing igneous cliffs and talus slopes, motorized access would have limited, if any impacts to the species. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Mimbres Figwort would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Mimbres Figwort, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Porsild's Starwort

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur within mixed conifer and aspen forests. It has also been documented along roadsides with steep, loamy and rocky embankments. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Porsild's Starwort would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Porsild's Starwort, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Pinos Altos Flame Flower

GIS mapped potential vegetation within this watershed associated with this species. Given the habitat where this species has been found, rocky south facing slopes or pockets of soil that accumulate among rhyolite boulders and outcrops, motorized access would have limited, if any impacts to the species. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Pinos Altos Flame Flower would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Pinos Altos Flame Flower, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Mogollon Clover

GIS mapped potential vegetation within this watershed associated with this species. The species is likely to occur near potential habitat within riparian zones in mixed conifer forest. Cross-country travel is being eliminated in these alternatives compared to the No Action Alternative. The elimination of acres available for cross-country travel, the decrease in acres available for Motorized Dispersed Camping, the decrease in motorized routes and the decrease in acres available for Motorized Big Game Retrieval would decrease the potential that Mogollon Clover would be impacted by motorized vehicles.

Effects Determination: Alternative E No Impact; 100% decrease in acreage available for MDC and MBGR. Alternatives C,D,F and G may impact individual Mogollon Clover, but would not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species.

Literature Cited

Joslin G., and H. Youmans, coordinators. 1999. Effects of recreation on Rocky Mountain Wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society. 307 pp.

Cole, D.N., and P.B. Landres. 1995. Indirect effects of recreation on wildlife. Pages 183-202 in Knight, R.L. and K.J. Gutzwiller, eds. Wildlife and Recreationists: Coexistence Through Management and Research. 1995. Island Press, Washington, D.C.

Ouren, D.S., Haas, Christopher, Melcher, C.P., Stewart, S.C., Ponds, P.D., Sexton, N.R., Burris, Lacy, Fancher, Tammy, and Bowen, Z.H., 2007, Environmental effects of off-highway vehicles on Bureau of land Management lands: A literature synthesis, annotated bibliographies, extensive bibliographies, and internet resources: U.S. Geological Survey, Open-File Report 2007-1353, 225 p.

Regional Forester's Sensitive Species List. 2007.

PLANTS:

Adenphyllum wrightii var. wrightii	Wright's dogweed
Allium gooddingii	Goodding's onion
Anticlea mogollonensis (=Zigadenus m.)	Mogollon death camas
Asclepias uncialis ssp. uncialis	Greene milkweed
Astragalus humistratus var. crispulus	Villous groundcover milkvetch
Cirsium gilense	Gila Thistle
Crategus wootoniana	Wooton's hawthorn
Cypripedium parviflorum var. pubescens	Yellow Lady's-slipper
Desmodium metcalfei	Metcalfe's tick-trefoil
Erigeron hessii	Hess' fleabane
Helianthus arizonensis	Arizona sunflower
Hexalectris spicata var. arizonica	Arizona coralroot
Hieracium brevipilum (=H. fendleri var. mogollense)	Mogollon Hawkweed
Hieracium abscissum (=H. rusbyi)	Rusby Hawkweed
Packera cardamine (=Senecio cardamine)	Heartleaf groundsel
Penstemon linarioides ssp. maguirei	Maguire's beardtongue
Pteryxia davidsonii	Davidson's cliff carrot

Rumex orthondeurus	Blumer's dock
Scrophularia macrantha	Mimbres figwort
Stellaria porsildii	Porsild's starwort
Talinum humile	Pinos Altos flame flower
Trifolium longipes ssp. neurophyllum (=T.neurophyllum)	Mogollon clover