Plant Species Evaluation Form

Pyrrocoma racemosa (Nutt.) Torr. & A. Gray **var. *congesta*** (Greene) Mayes ex G.K. Br. & D.J. Keil

DEL NORTE PYRROCOMA

Family: Asteraceae (CNPS 2018)	**PLANTS Symbol:** PYRAC2 (USDA 2018)	**Calif. Endemic:** No (CNPS 2018)

Synonyms/Other Names: Described as *Pyrrocoma congesta* Greene in 1896. Its name was changed to *Haplopappus racemosus* subsp. *congestus* (Greene) H.M. Hall in 1928. Its current name was assigned in 1992 (Tropicos 2018).

Identification Issues: Historically treated as a section within the genus *Haplopappus*. The genus *Pyrrocoma* is distinguished by its leaves in persistent basal rosettes, scapiform to few-bracted inflorescences, and acute, obtuse, or mucronate phyllaries. *Pyrrocoma racemosa* is variable and is characterized by glandless herbage, tufted leaves, erect stems, conspicuous ray florets, and several to many heads on a raceform or spiciform inflorescence. Varieties often intergrade. Variety *congesta* is recognized by its slender stems, yellow-green phyllaries, and inflorescences with congested heads arranged in glomerate-spiciform arrays (i.e. crowded and broadly spike-like) (Bogler 2006; Keil and Brown 2018).

Taxonomy:

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Species In Genus: +- 15 species: western North America. Etymology: (Greek: +- red hair, describing pappus).

Genus Description – Habit: Perennial herb from woody taproot. Stem: 1--many, decumbent to erect, generally red-tinged. Leaf: basal and cauline, alternate, entire, toothed, or sharply lobed, glabrous to tomentose or glandular; basal petioled; cauline generally clasping, +- reduced. Inflorescence: heads generally radiate, 1--30+; involucre hemispheric to bell-shaped; phyllaries +- equal or +- graduated in 2--6 series, herbaceous; receptacle flat to weakly convex, epaleate. Ray Flower: 10--80; corolla 2--35 mm, ray adaxially yellow, abaxially yellow to orange or red. Disk Flower: 20--100+; corolla 5--15 mm, cylindric to funnel-shaped, yellow. Fruit: 3--4-angled, generally hairy; pappus bristles 15--60, generally rigid, unequal.

Species Description – Stem: 15--90 cm, generally glabrous. Leaf: basal 5--36 cm, (ob)lanceolate to widely elliptic, entire to serrate, petiole tomentose; cauline clasping, reduced, generally serrate, glabrous. Inflorescence: heads 3--15+, in +- narrow clusters; involucre 5--18 mm diam, hemispheric or bell-shaped; phyllaries overlapping in 4--5 series, 6--13 mm, (ob)lanceolate to oblong, (+-) glabrous. Ray Flower: 7--28; ray 5--10 mm. Disk Flower: 20--65; corolla 5--8 mm. Fruit: 2.5--5.5 mm, 4-angled, glabrous to densely tomentose; pappus 6--9 mm, tan to +- brown.

Variety Description – Inflorescence: generally crowded, spike-like; involucre 5--8.5 mm, 12--16 mm diam; phyllaries herbaceous and yellow-green throughout, acute, sparsely tomentose (at

least near base), tip glandular-ciliate, not recurved. eFlora Treatment Author: David J. Keil & Gregory K. Brown.

Status:

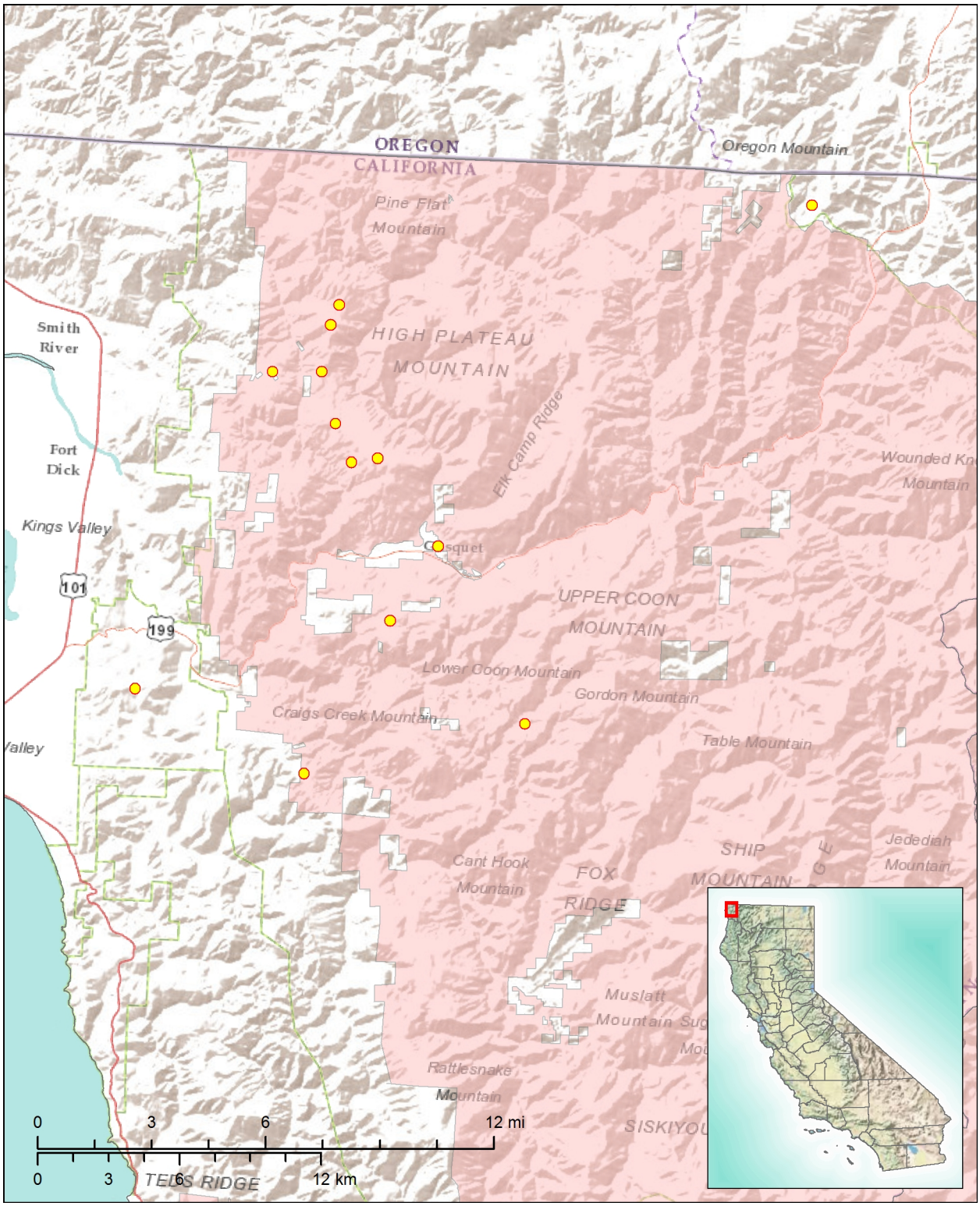
Note: Federally recognized Endangered, Threatened, Proposed, or Candidate species under the Endangered Species Act are omitted as they do not meet the definition of a Species of Conservation Concern (FSH 1909.12 § 12.52).

State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G5T4	CA: S2 NV: Not listed OR: Not listed	2B.3	Not listed	Not listed	Not listed

SWAP:	NNHP:	NNPS:	ORBIC:	OCS:	IUCN:
Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Expanded abbreviations and citations: State Listing=California Endangered Species Act Listing (CDFW 2018b), Nevada Division of Forestry Fully Protected Plant Species (NAC 527) (NDF 2012), Oregon Department of Agriculture Listed Plants (ODA 2014); G-rank=Global Conservation Status (CDFW 2018a; NatureServe 2018); S-rank=Subnational (state or province-level) Conservation Status (CDFW 2018a; NatureServe 2018; NNHP 2017; ORBIC 2016); CRPR=California Rare Plant Rank (CNPS 2018); R5 FSS=USDA Forest Service Region 5 Regional Forester Sensitive Plant Species List (USDA 2013); NFP SM=Forest Service and Bureau of Land Management Northwest Forest Plan Survey and Manage Species (USDA 2001); CA BLM=California Bureau of Land Management Designated Sensitive Species (BLM 2010); SWAP=California State Wildlife Action Plan Status (CDFW 2015); NNHP=Nevada Natural Heritage Program Status (NNHP 2017); NNPS=Nevada Native Plant Society Status (NNHP 2017); ORBIC=Oregon Biological Information Center Status (ORBIC 2016); OCS=Oregon Conservation Strategy Species (ODFW 2016); IUCN=International Union for Conservation of Nature Red List Status (IUCN 2017).

Distribution: Western North America; occurrences are found only in northwest California and southwest Oregon. All California occurrences are found in Del Norte County within the Klamath Ranges (KR) bioregion. A majority (12/13; ~92%) of California occurrences are on NFS lands within Six Rivers NF. A single occurrence record is located outside NFS lands within five miles of the Six Rivers NF boundary (CNDDB 2017; Keil and Brown 2018).



Sources: *Distribution*: CNDDB 2017. *Layers*: USDA Forest Service, Pacific Southwest National Forests: CPAD 2016. California counties: CDF 2009. *Basemaps*: California inset map: © 2013 National Geographic Society, i-cubed (Esri 2017a). Main map: Esri, DeLorme, USGS, NPS (Esri 2012) and Esri, USGS, NOAA (Esri 2017b).

Locations within California:

Record numbers indicate sites that contain an individual, population, or groups of populations located within ¼ mile of each other, per the California Natural Diversity Database (CNDDB 2017) definition of Element Occurrences (EOs) in California. Official EO numbers for plants in California are determined solely by the CNDDB and are included within the Reference (Source) column for CNDDB data. Duplicate records from the same site are given the same record number and included in red. The Population Info column includes total number of individuals and total number and size of populations/sub-populations when provided. Elevations provided in meters from source have been converted to feet. If not provided in original source, Land Manager information was obtained using the California Protected Areas Database (CPAD 2016) and Quad information was obtained using 24K Quads, SDE Feature Class (CDFG 2013). All other information is directly from the Reference (Source) unless additional citation is given.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	OLD GASQUET TOLL ROAD AND MIDDLE FORK GASQUET ROAD, NORTH OF SMITH RIVER, GASQUET.	Del Norte	Gasquet (4112378)	CNDDB, May 2017 (EO 1)	8-Aug-1975	MAIN SOURCES FOR THIS SITE ARE 1970 CHAMBERS, 1973 DEBUHR, AND 1975 BARKER COLLECTIONS. ADDITIONAL COLLECTIONS FROM GASQUET AND N SIDE SMITH RIVER FROM 1912, 1923, 1937, & 1939 ALSO ATTRIBUTED HERE. INCLUDES FORMER EO#S 2 & 3.		Six Rivers NF	800
2	FRENCH HILL, GASQUET.	Del Norte	Gasquet (4112378)	CNDDB, May 2017 (EO 4)	14-Sep-1912	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1912 EASTWOOD COLLECTION. NEEDS FIELDWORK.		Six Rivers NF	
3	NEAR LOWER COON MOUNTAIN.	Del Norte	Gasquet (4112378)	CNDDB, May 2017 (EO 5)	22-May-1979	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1979 CLIFTON & OVERTON COLLECTION. NEEDS FIELDWORK.		Six Rivers NF	2250

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
4	ILLINOIS RIVER BED HEAD OF WEST FORK.	Del Norte	Shelly Creek Ridge (4112387)	CNDDB, May 2017 (EO 6)	9-Sep-1941	MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1938 VAN DEVENTER COLLECTION. A 1941 PARKS & JACKSON COLLECTION FROM "N OF MONUMENTAL" IS ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Six Rivers NF	2200
5	NEAR GASQUET MOUNTAIN, CLOSE TO THE TOWN OF GASQUET.	Del Norte	High Plateau Mtn. (4112388)	CNDDB, May 2017 (EO 7)	18-Jun-1979	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1979 CLIFTON & GRISWOLD COLLECTION. NEEDS FIELDWORK.		Six Rivers NF	2500
6	NEAR BALD HILL, CLOSE TO THE TOWN OF CRESCENT CITY.	Del Norte	Hiouchi (4112471)	CNDDB, May 2017 (EO 9)	13-Jul-1979	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1979 COLLECTION BY CLIFTON & OVERTON. NEEDS FIELDWORK.		Six Rivers NF	1949
7	HIGH DIVIDE, ALONG ROAD 305 (WIMER ROAD) BETWEEN MILEPOST 10.0 AND 10.9.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 10)	27-Aug-1990	MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1990 TAYLOR COLLECTION. A 1937 WOLF COLLECTION FROM HIGH DIVIDE IS ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Six Rivers NF	2400

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
8	ALONG WIMER ROAD, JUST NE OF LOW DIVIDE, SIX RIVERS NATIONAL FOREST.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 11)	24-May-1979	OBSERVED IN 1979. A 1938 TRACY COLLECTION AND 1960 & 1962 VAN DEVENTER COLLECTIONS FROM LOW DIVIDE ARE ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Six Rivers NF	2200
9	NEAR WIMER ROAD, CLOSE TO THE TOWN OF SMITH RIVER.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 12)	24-May-1979	MAIN SOURCE OF INFORMATION FOR THIS SITE IS A 1979 CLIFTON & OVERTON COLLECTION. ALSO REPORTED FROM LE HORTON RESEARCH NATURAL AREA AT "UPPER ELEVATION NEAR STONE CORRAL" BASED ON A 2004 REPORT; UNKNOWN WHEN PLANTS SEEN. NEEDS FIELDWORK.		Six Rivers NF	2240
10	ABOUT 1.3 MILES SOUTHEAST OF LOW DIVIDE, SIX RIVERS NATIONAL FOREST.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 13)	18-Jun-1979	SITE BASED ON A FIELD SURVEY FORM MAP; DATE OF PYRROCOMA OBSERVATION UNKNOWN, AND A 1979 CLIFTON & GRISWOLD COLLECTION.		Six Rivers NF	2350

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
11	WEST SIDE OF GASQUET MOUNTAIN, APPROXIMATELY 2.2 AIR MILES SOUTHEAST OF ALTA MINE, SIX RIVERS NATIONAL FOREST.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 14)	17-Sep-1978	SITE BASED ON A FIELD SURVEY FORM MAP, DATE OF PYRROCOMA OBSERVATION UNKNOWN; AND A 1978 RENNER COLLECTION FROM THE NE 1/4 OF SECTION 12. NEEDS FIELDWORK.		Six Rivers NF	1700
12	JEDEDIAH SMITH REDWOODS STATE PARK.	Del Norte	Hiouchi (4112471)	CNDDB, May 2017 (EO 15)	Unknown	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1983 CHECKLIST FOR JEDEDIAH SMITH REDWOODS SP; UNKNOWN WHEN PLANTS SEEN. NEEDS FIELDWORK.		DPR-Jedediah Smith Redwoods SP	
13	FOREST SERVICE ROAD 305 APPROXIMATELY 0.4 MILE NNE OF STONE CORRAL (SITE) ON TOPO, NORTH OF LOW DIVIDE.	Del Norte	High Divide (4112481)	CNDDB, May 2017 (EO 16)	Unknown	ONLY SOURCE OF INFORMATION IS AN ANONYMOUS MAP; NEEDS FIELDWORK.		Six Rivers NF	2100

Distribution on National Forest System (NFS) Lands:

(Please see Reference column of Locations table above for references pertaining to Record Numbers indicated on NFS lands.)

National Forest System (NFS) lands	Record #s (from Locations table above)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 yrs.)	Historic (not seen in past 20 yrs.)	Most Recent Obs.	EOs/ Recs. (5 mile buffer)	Total Records on NFS lands
Angeles:	-	-	-	-	-	-	-	0
Cleveland:	-	-	-	-	-	-	-	0
Eldorado:	-	-	-	-	-	-	-	0
Inyo:	-	-	-	-	-	-	-	0
Klamath:	-	-	-	-	-	-	-	0
Lake Tahoe Basin MU:	-	-	-	-	-	-	-	0
Lassen:	-	-	-	-	-	-	-	0
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	-	-	-	-	-	-	-	0
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13	12	-	-	12	27-Aug-1990	1	12
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	12	0	0	12	N/A	1	12

Demographic and Population Trends: Population count and size estimate data are lacking for occurrences within California. The most recent observation of any California occurrence was in August of 1990 (CNDDB 2018). Further documentation and fieldwork are needed.

Life History: *Pyrrocoma racemosa* var. *congesta* is a perennial herb that blooms from August through September (CNPS 2018). Plants develop basal leaves from a woody taproot. Cauline leaves are reduced, clasping, and emerge from slender stems that are decumbent to erect. Plants produce radiate heads that are open to pollinators (Bogler 2006; Keil and Brown 2018). Skipper

(*Polites* spp. and *Hesperia* spp.) and sulpher (*Colias* spp.) butterflies have been documented visiting plants in the genus *Pyrrocoma* (CPC 2018).

Diversity: *Pyrrocoma* is a group of 14 western North American species within Astereae. This is the second largest tribe in Asteraceae, and accounts for over 220 genera and roughly 3,100 species. Astereae contains many familiar genera like *Baccharis, Ericameria, Erigeron, Heterotheca, Solidago, Symphyotrichum*, and others (Funk et al. 2009). *Pyrrocoma* is a member of subtribe Machaerantherinae, alongside *Corethrogyne, Dieteria, Grindelia, Isocoma, Lessingia, Xanthisma, Xylorhiza*, and roughly ten other genera restricted to western North America (exc. the widespread *Grindelia* and South American *Haplopappus*).

Reticulate evolution has played an important and unresolved role in the formation of species within this group, as revealed by strongly incongruent cpDNA and nrDNA phylogenies of Machaerantherinae (Morgan et al. 2009). The 14 species of *Pyrrocoma* are all herbaceous perennials with woody taproots, prominent basal leaves, and reduced cauline foliage. Species are typically polymorphic as reflected by the large number of infraspecific entities described genus-wide. Some entities are weakly characterized and remain in need of clarification. *Pyrrocoma racemosa* is the most variable species of *Pyrrocoma*, and is thought to be closely related to the small headed and raciform *P. asparagoides*, *P. lucida*, and *P. uniflora* (Bogler 2006).

Habitat: Plants are typically associated with serpentine substrates in chaparral and lower montane coniferous forests (CNPS 2018). Plants are also reported from sites with boggy conditions alongside *Darlingtonia californica* (Bogler 2006; CNDDB 2018; Keil and Brown 2018). CNDDB element occurrence data indicate that plants are associated with river beds, bouldered slopes in evergreen conifer forests, north-facing slopes in sclerophyll forests, and within dry and open sites (CNDDB 2018).

Habitat Status or Trend: Habitat preference is quite variable for this taxon (Bogler 2006; CNDDB 2017; Keil and Brown 2018). Overall status and trends associated with preferred habitats remain undetermined. Fire suppression may impact habitat associated with occurrences located in forest gaps and understory conditions (Skinner 1995: Lydersen et al. 2013).

Capacity for the Species to Disperse: Members of the genus *Pyrrocoma* have pappus of bristles. The pappus of *P. racemosa* var. *congesta* is 6-9 mm in length (Keil and Brown 2018). This feature is known to increase dispersal distance of some plants with this trait (Sheldon and Burrows 1973).

Threats: There are no known or documented threats to *Pyrrocoma racemosa* var. *congesta*.

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Reviewer(s) and Date:

David Magney, Rare Plant Program Manager, California Native Plant Society, (916) 447-2677 ext. 205, dmagney@cnps.org. July 19, 2018.

Formatting: Form is set up as 508 compliant. Please use the "styles" if further formatting is necessary.

Purpose: This is to maintain the best available science on a species that could be used by the Forest Service in a variety of functions. Specifically, there would be additional steps and

evaluations to determine whether or not this species would be considered a Species of Conservation Concern under the 2012 Planning Rule or a Sensitive Species under the 1982 Planning Rule.

Additional Considerations at the Forest Level: Habitat amount and juxtaposition of both the species and habitat locations.