## IMPORTANT PLANT AREA NOMINATION FORM - MONTANA

## Nominated Site Name: South Pryor Mountains Important Plant Area (IPA)

<u>General Location</u>: The South Pryor Mountains IPA is located between the Bighorn River on the west and the Clark's Fork of the Yellowstone River on the east, the Wyoming state line on the south in Carbon County ca. 50 miles south of Billings, Montana. The IPA includes most of the south-facing drainages of the Pryor Mountains, including from east to west; Davis Creek, Trail Creek, Layout Creek, Big Coulee, Crooked Creek, Gypsum Creek and Bear Creek.

Site Coordinates: Coordinates are withheld because private land is included in the IPA.

Maps: Maps are withheld because private land is included in the IPA.

**Photographs**: Landscape photographs as well as photos of *Erigeron allocotus, Penstemon caryi, Physaria lesicii, Shoshonea pulvinata,* and *Sullivantia hapemanii.* 

Counties: Carbon Co.

**Elevation**: 3,680 ft on the Bighorn River to 8,770 ft on the summit of East Pryor Mountain.

Size of Area: 114,950 acres

**<u>Property Ownership</u>**: Bureau of Land Management, U.S. Forest Service, National Park Service, State of Montana, and private.

<u>Other designations for the site</u>: East Pryor Mountain Area of Critical Environmental Concern (BLM), Lost Water Canyon Research Natural Area (USFS). Burnt Timber Canyon Wilderness Study Area (BLM) Pryor Mountain Wilderness Study Area (BLM), Pryor Mountain Wilderness Study Area (BLM), Bighorn Canyon National Recreation Area (NPS), Bear Canyon Important Bird Area (Audubon, USFS, BLM).

Species	MNHP	MNHP	Last	Population	Trend
	global	state	observed	size	
Astragalus aretioides	G4	S2S3	2001	1000+ plants	Unknown
Astragalus geyeri	G4	S2	2005	2000+ plants	Unknown
Astragalus oreganus	G4?	S2	2005	5,000+ plants	Unknown
Boechera demissa	G5	S1S3	1993	Unknown	Unknown
Camissonia andina	G4	S2	1991	1,000-10,000	Unknown
				plants	
Camissonia parvula	G5	S1S2	1993	100-1,000	Unknown
				plants	
Cleome lutea	G5	S1S2	1995	Unknown	Unknown
Erigeron allocotus	G3	<b>S</b> 3	1999	10,000+	Unknown
				plants likely	
Eriogonum salsuginosum	G4?	<b>S</b> 1	1995	Approx 1,000	Unknown
Grayia spinosa	G5	S2	2005	Approx 1,000	Unknown
Leptodactylon caespitosum	G4	S2	2010	2,000-5,000	Unknown
Malacothrix torreyi	G4	S1S2	2005	Unknown	Unknown
Mentzelia pumila	G4	S2S3	1999	Unknown	Unknown
Nama densum	G5	<b>S</b> 1	1991	100-1,000	Unknown
Penstemon caryi	G3	<b>S</b> 3	1995	Unknown	Unknown
Physaria lesicii	G2	S2	1998	10,000+	Unknown
				plants	
Shoshonea pulvinata	G2G3	S2	1999	4,000-5,000	Possibly
				plants	declining
					(Heidel
					2001)
Stipa lettermanii	G5	S1S3	1999	Unknown	Unknown
Sullivantia hapemanii	G3	S2	2001	1,000+	Unknown
Rhizoplaca haydenii	G2G3	S1S2	1995	Unknown	Unknown
(Lichen)					

Table 1. Plant Species of Concern in the South Pryor Mountains IPA

**Trend Information**: Trend data are lacking for almost all plant SOC within the proposed IPA. Only *Shoshonea pulvinata* has monitoring data available. In 1991-93 permanent monitoring transects were established for *Shoshonea pulvinata*, two of these are within the proposed IPA boundary near Mystery Cave. Transects were read from 1991 to 1993 and again in 1999. Populations remained stable at 2 sites, including one on the east slope of the Beartooth Plateau, while the Mystery Ridge transect within the prosed IPA showed a steep decline between 1991-1992 and an overall declining trend during the monitoring period (Heidel 2001).

**Threats:** Threats to the rare plants in the South Pryor Mountains proposed IPA include off-road vehicle use, trampling by livestock and wild horses, weed invasion, mineral exploration and extraction, and climate change. Most of the rare plants occur in open habitats that could be

negatively impacted by soil erosion or compaction from off-road vehicle use or mining exploration. *Halogeton glomeratus* is a pernicious weed in Wyoming and south and occurs in some low-elevation portions of the proposed IPA. Trampling by wild horses has caused terracing and degradation of *Physaria lesicii* habitat on Sykes Ridge (Lesica 1995). *Sullivantia hapemanii* occurs in seeps along Bighorn Canyon. Changes in hydrology associated with a drying or warming climate could cause loss of habitat for this species.

Species	Threats	Level	Comments
All but	Weed Invasion	Low	Halogeton glomeratus is common in some
Shoshonea			parts of proposed IPA at lower elevations and
and			could exclude recruitment of native plants.
Sullivantia			
Low- and	Trampling by	Low-	Grazing is present throughout the IPA. Has the
mid-	livestock and	moderate	potential to damage habitat for Physaria lesicii
elevation	wild horses		and other species occupying steep slopes.
species of			
open			
habitats,			
especially			
Physaria			
All species	Off-road	Low	Limestone and bentonite are currently being
except	vehicle use and		mined on the periphery of the IPA.
Sullivantia	mineral		
	exploration and		
	extraction		
Sullivantia	Climate Change	Unknown	Changes in temperature and water availability
hapemanii			could impact the calcareous seep habitat.

Table 2. Type and severity of threats for rare plants in the South Pryor Mountains IPA

**Justification**: The proposed South Pryor Mountains IPA supports a large number of plants considered rare in Montana. The majority of these are plants with affinities to the Great Basin floristic province (14 species). They are more common in Wyoming and Utah but reach the northern margin of their range in the South Pryor Mountains area. For all SOC's included in the proposed IPA boundary, the IPA encompasses the entire known range or a significant portion of the known populations of these species within Montana. Five species of vascular plants are globally rare, being endemic to the north end of the Bighorn Basin of Montana and Wyoming.

The proposed South Pryor Mountains IPA has 5,000 ft of vertical relief and supports ca. 29 distinct plant communities (DeVelice and Lesica 1993). Forests and woodlands dominated by limber pine occur on warm, often exposed, stony-soil slopes at or above 6,500 ft. Douglas-fir forests occur on slopes at 5,000-7,000 ft. Woodlands dominated by Utah juniper occur on shallow, calcareous soil of slopes and ridges at 4,000-6,000 ft. Limber pine-juniper woodlands are found on shallow, calcareous soils of slopes between 4,000 ft and 5,300 ft. Shrublands dominated by black sagebrush and big sagebrush occur at 4,200-6,700 ft on slopes, ridgetops and benches. Toeslopes, terraces and alluvial fans at 3,800 ft to 5,300 ft, often with heavy soil, support shrublands dominated by big sagebrush (*Artemisia tridentata*), bird's-foot sagebrush (*Artemisia pedatifida*), black greasewood (*Sarcobatus vermiculatus*), and Gardner's saltbush

(*Atriplex gardneri*). Idaho fescue grasslands occur above 8,000 ft on gentle slopes. Grasslands dominated by bluebunch wheatgrass and cushion plants are common on gravelly soils of low-elevation ridgetops and upper slopes.

Several plant communities in the proposed South Pryor Mountains IPA were considered globally rare at the time of the last vegetation survey in the area (DeVelice and Lesica 1993, Lesica 1994). Three of these plant communities deserve mention because they are widespread in the proposed IPA and thought to be globally rare. These are (1) *Juniperus osteosperma/Cercocarpus ledifolius* woodlands, (2) *Pinus flexilis/Juniperus osteosperma* woodlands, and (3) *Atriplex nuttallii/Artemsisia spinescens* shrublands (DeVelice and Lesica 1993, Lesica 1994). These communities are reported to be endemic to the Pryor Mountain Desert and adjacent Northern Bighorn Basin (DeVelice and Lesica 1993). The two woodland communities are common at mid elevations, while the shrubland type was recorded at some of the lowest elevations in the proposed IPA. Further research is needed to determine if other plant communities reported for the area are truly globally rare.

The IPA boundary is drawn to contain the highest concentration and exemplary populations of all the rare species and communities. The southern boundary is the Wyoming state line. The east boundary is the Bighorn River which is also the approximate boundary between the Bighorn Canyon National Recreation Area and the Crow Indian Reservation. The north boundary is the summit ridge of the Pryor Mountains. The west boundary was drawn to include Bear Creek Canyon and all of Crooked Creek Canyon.

## References:

DeVelice, R.L. and P. Lesica. 1993. Plant community classification for vegetation on BLM lands, Pryor Mountains, Carbon County, Montana. Montana Natural Heritage Program, Helena. 40 pp. + appendices.

Heidel, B. 2001. Monitoring *Shoshonea pulvinata* in the Pryor and Beartooth Mountains, Carbon County, MT. 1999 trend report to Bureau of Land Management, MT. Montana Natural Heritage Program, Helena. 11 pp. + appendices.

Lesica, P. 1994. Vegetation map of the rare plant community types in the Pryor Mountains and Pryor Mountain Desert, Carbon County, Montana. Montana Natural Heritage Program, Helena. 6 pp. + 6 map sheets.

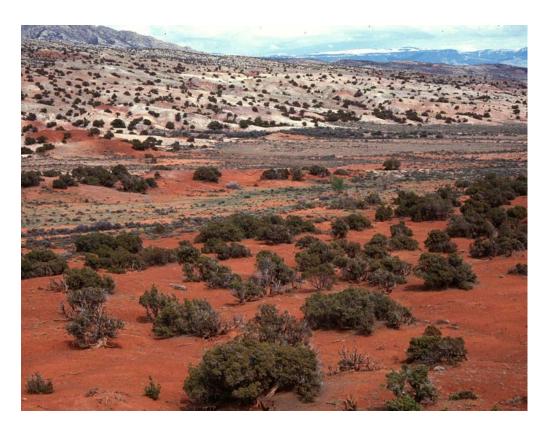
Lesica, P. 1995. Conservation status of *Lesquerella lesicii* in Montana. Unpublished report to USDA Forest Service, Missoula, MT and USDI-BLM, Billings, MT.

Montana Natural Heritage Program. 2012. MTNHP Botany Database: Accessed February 4, 2012. Montana Natural Heritage Program, Helena.

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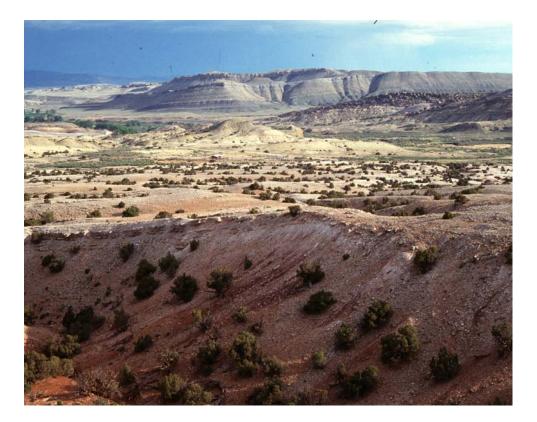
Photograph 1. Sagebrush steppe in the foreground; Utah juniper woodlands on red Chugwater sandstone; limber pine woodlands on the foothills in the background.



Photograph 2. Utah juniper woodlands in the foreground; limber pine woodlands in the background.



Photgraph 3. Sagebrush steppe near Gyp Spring.



Photograph 4. Cushion plant grasslands in the foreground; Crooked Creek left-center; bentonite hills (mainly in Wyoming) in the background.



Penstemon caryi



Sullivantia hapemanii



Physaria lesicii



Erigeron allocotus



Shoshonea pulvinata