IMPORTANT PLANT AREA NOMINATION FORM

Nominated Site Name: Lost Trail National Wildlife Refuge (LTNWR)

General Location:

The Refuge is located in the Salish Mountains of Northwest Montana within Pleasant Valley approximately 20 miles west of Marion.

Site Coordinates: Latitude and Longitude coordinates (NAD83/WGS84) are approximately:
Northern most point: 48° 10'14"N and 114° 54'15"W
Southern most point: 48° 08'34"N and 114° 47'48"W
Western most point: 48° 10'09"N and 114° 57'53"W
Eastern most point: 48° 08'44"N and 114° 47'49"W

Maps/Photographs:

1. Plant Species of Concern locations on LTNWR
2. *Silene spaldingii* – Spalding's catchfly
3. *Silene spaldingii – Palouse Prairie Savannah Habitat*
4. *Silene spaldingii – Plant Monitoring Study Plot*
5. *Silene spaldingii - Palouse Prairie Habitat*
6. *Hornungia procumbens* - Hutchinsia
7. *Idahoa scapigera* - Scalepod
8. *Allium geyeri* var. *geyeri* - Geyer's Onion

County:

Flathead County

Elevation:

Ranges from 3,488 to 4,600 feet

Size of Area:

The Congressionally designated Lost Trail National Wildlife Refuge encompasses 9,225 acres. LTNWR is currently 7,965 acres in size but also includes 1,440 acres of State land leases currently managed by the Refuge. Total acres currently managed – 9,405 acres. A large area north of the Refuge currently owned by Southern Pines Plantation (SPP) now has a conservation easement (see map on P.6)

Property Ownership:

U.S. Fish and Wildlife Service, Montana Department of Natural Resources and Conservation (DNRC), Southern Pines Plantations (see map on P.6).

Plant Species of Concern (SOC) Information:

Table 1. Vascular Plant Species of Concern at Lost Trail NWR (LTNWR)

Species	MNHP rank	Last Observation	Population Size	Trend	Source
Silene spaldingii	G2/S2 USFWS – Federal Threatened	July 2017	500+ in Palouse Prairie grasslands	Declining to possibly stable	Lesica 2014 USFWS Internal

					Survey Report 2015
Hornungia procumbens	G5/S2	May 2005	Uncommon from 1 location Currently unknown	Unknown Annual so populations may fluctuate	Lesica 2005 Lesica 2014 LTNWR Herbarium
Idahoa scapigera	G5/S1S2 Montana Species of Concern	May 2014	Common in 2 locations (2005) Currently unknown	Unknown Annual so populations may fluctuate	Lesica 2005 Lesica 2014 LTNWR Herbarium
Allium geyeri var geyeri	G4G5T4/S3 Montana Species of Concern	June 2017	Abundant on Refuge moist grasslands	Stable	Lesica 2014 LTNWR Herbarium

What qualifies this site as an Important Plant Area?

Palouse Prairie habitat- the majority of which is in good to excellent condition
Silene spaldingii populations – one of three largest populations in MT and designated as one of fewer than twenty Key Conservation Areas for *Silene spaldingii* in the U.S.
Wetland and vernally moist wetland areas with Montana Species of Concern plant species *Hornungia procumbens, Allium geyeri* var. *geyeri* and *Idahoa scapigera*

Historically, Palouse Prairie grasslands and savannahs stretched across the intermountain western landscapes. These rich, deep soil grasslands are now mostly gone. Over 1000 acres of this bunchgrass prairie ecosystem can be found on LTNWR which protects habitat for four Montana plant species of concern including the Federally Threatened Spalding's Catchfly (*Silene spaldingii*). LTNWR was purchased due to mitigation for habitat losses associated with Flathead Waterfowl Production Area on the north shore of Flathead Lake. The Refuge can be described as a long valley crossed by Pleasant Valley Creek which also includes the approximately 1500+ acre glacial Dahl Lake. The Refuge encompasses wetlands (permanent, semi-permanent, seasonal and moist saline), riparian corridors, uplands dominated by Palouse Prairie and ponderosa pine and western larch savannah and temperate forests dominated by lodgepole pine and Douglas fir. Pre-European fire frequency within what is now LTNWR had a fire frequency of one to six years within this Palouse Prairie valley (Frost 2016). The valley was settled by Euro-American ranchers in the late 1800's, which brought an end to the natural frequent fires due to heavy use of the native habitat by domestic cattle and human led protection of new home sites. During this same settlement time, most of the wet meadows were ditched, plowed and replanted to non-native hay grasses. Upland Palouse Prairie lands were heavily over-utilized by domestic cattle compounded by large resident deer and elk populations.

All US Fish and Wildlife Service wildlife refuges are mandated by Congress to create a Comprehensive Conservation Plan (CCP) for each individual refuge which includes the requirements to "maintain the biological integrity, diversity and environmental health of each refuge" and "monitor the status and trends of fish, wildlife and plants on each refuge." Lost Trail NWR staff completed an initial CCP in 2005 at which time the native Palouse Prairie ecosystem type was documented on parts of the refuge as a "rare ecosystem exhibiting a 98 percent decline" nationwide. It was also noted that an unknown population of Spalding's catchfly (*Silene spaldingii*) had been documented on Lost Trail NWR in 2002. At that time, it was estimated there were approximately 300 plants on the Refuge.

As a result of this planning process, Peter Lesica was hired to complete a comprehensive inventory of vascular plants present on the refuge in 2005 and again in 2014. The result of this extensive inventory is a plant species count of 436 plant species including the Federally Threatened Spalding's catchfly (*Silene spaldingii*) and three Montana Natural Heritage Program Plant Species of Concern including: Hutchinsia (*Hornungia procumbens*), Scalepod (*Idahoa scapigera*), and Geyer's Onion (*Allium geyeri var geyeri*).

The management plan includes the new information available on Plant Species of Concern as well as newly designed plans for the monitoring, protection and habitat enhancement of these plant species. Refuge plans must also reflect conservation goals and objectives for the landscapes in which an individual refuge is located and must therefore review goals and objectives of existing ecosystem plans and determine how the refuge can best contribute to the functioning of the ecosystem to which they belong. This additional ecosystem level mandate requires Refuge staff to plan for the management of the unique plant communities of Palouse Prairie grasslands as well as the pockets of moist soil/wetlands scattered throughout the Refuge.

The National Recovery Plan for *Silene spaldingii (*USFWS 2007) describes the plant as a "long-lived perennial forb" which has been impacted by "habitat loss due to human development, habitat degradation associated with domestic livestock and wildlife grazing and invasions of aggressive nonnative plants." In addition, it has been documented that "a loss of genetic fitness is a problem for many small, fragmented populations where genetic exchange is limited". Other impacts noted include "changes in fire frequency and seasonality, off-road vehicle use and herbicide spraying and drift". The objective of the recovery plan is to "protect and maintain reproducing, self-sustaining populations in identified key conservation areas…". Due to the Refuge's large population of plants, semi-intact areas of Palouse Prairie, management plans of returning fire to the landscape and sufficient adjacent pollinator habitat, Lost Trail NWR has been approved as part of the designated federal Key Conservation Areas for *Silene spaldingii*.

Upland grasslands have generally returned to good condition native grass and forbs. The only significant exceptions are areas along the northern edge of the Refuge that were disturbed during timber harvest operations of the adjacent forest. These areas are currently dominated by exotic weeds and should be actively restored.

Wetlands on the shores of Dahl Lake are still intact. Recently, Pleasant Valley Creek has been restored to more nearly its natural condition by removing roads and planting willows and other deciduous shrubs along the banks. The historic wet meadows in sections 19, 20 and 21 were converted to ditched non-native hay meadows when in private ownership. Most of the wetter

sites before the River Designs restoration of wetlands were dominated by Garrison Creeping Foxtail (*Alopecurus arundinaceus*), an introduced species that occurred in nearly pure stands planted for livestock hay and grazing. Due to the rising water table and the plugging of the manmade ditches, these areas are now slowly returning to native wetland vegetation without active restoration. In the area of permanent water in wet years now a variety of aquatic species occur such as pondweeds and water lilies. In the driest years the mud flats that emerge support smartweeds (*Polygonum* spp.) and other species. After restoration of the wetlands, the *Alopecurus* was replaced in the wettest places outside of semi-permanent water by native emergent sedges and bulrush. Reed canary grass (*Phalaris arundinacea*) occurs now in bands surrounding the sedges.

Although Lost Trail NWR lands are currently protected under the US Fish and Wildlife Service National Wildlife Refuge System, Refuge lands are open to the public for approved uses including hunting, hiking, photography etc. If not managed carefully, some of these public uses can negatively impact refuge species of concern – both plant and animals. The CCP process must take into consideration and weigh all public uses when determining future management planning. An Important Plant Area designation will help add importance to the role of plant species of concern during this planning process.

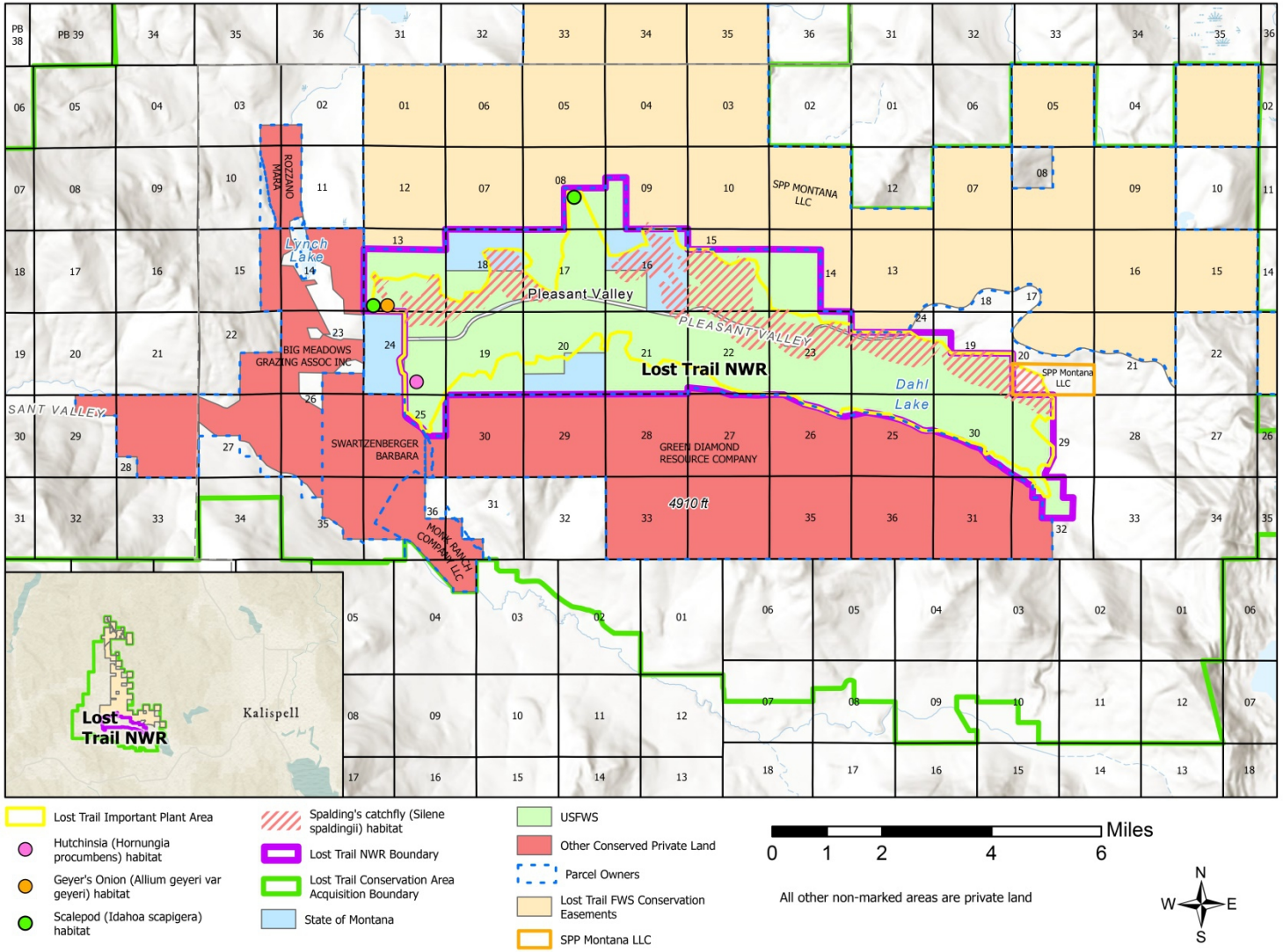
Threats:

Table 2. Summary of Threats

Species	Threats on LTNWR	Level	Comments
Silene spaldingii	Lack of fire on the landscape to maintain Palouse Prairie ecosystem (historically LTNWR grasslands had a 1-6 year fire frequency)Frost 2016) Trespass cattle and native grazers (deer, elk and small mammals) (Skinner 2017, Cullen, Taylor and Schmalz 2011) Weeds Dependence on pollinators as recorded on Zumwalt Prairie – (*Bombus fervidus* – status not ranked in Montana and *Bombus appositus* – status not ranked in Montana) (Taylor and DeBano 2012) Genetically isolated population – inbreeding (Lesica 2017, USFWS 2016) Peripheral population (Lesica 2014)	Moderate	First observed on LTNWR in 2002. LTNWR has been designated as a Key Conservation Area for this federally threatened plant. A Refuge wide survey was completed between 2013 and 2016 and over 500 plants were located and mapped during this time. Refuge staff is currently monitoring this plant species. Twelve permanent plots were established in 2016. Plants were individually mapped in each plot during the growing season. Due to its complicated life cycle (individual plants can remain dormant or appear above ground only briefly for one or more consecutive years). This initial study hopes to determine plant dormancy rates on LTNWR. The third year of a three-year trend study was completed in 2017. Thirty-seven plants were mapped in 2016 and 65 plants were mapped in 2017 for a total of 94 individual plants (with 8 duplicates during this two year period). Peter Lesica directed a plant enhancement project on LTNWR (Lesica 2017). The purpose of this project is to enhance the number of plants and also to add genetic variety in order to reduce the adverse effects of inbreeding depression of Refuge plants. A USFWS Biological Opinion regarding effects of this Population Out-Planting on LTNWR was completed in June 2016 (USFWS 2016). LTNWR staff is currently working on the refuge 15-year Comprehensive Conservation Plan (CCP) which will address threats to all documented plant species of concern. Management strategies for *Silene spaldingii* will include: prescribed burns in Palouse prairie uplands, continued plant genetic enhancement, weed management, and fencing issues to reduce trespass cattle. Further research studies may include pollinator species documentation and continued population mapping studies. Peter Lesica documented a population decline on LTNWR over a six- year period possibly due to lower viability of plants at the periphery of a species range.
Hornungia procumbens	Trespass cattle and native grazers MNPS Threat Rank 3 (Viability not threatened or insignificant)	Low	Spring wet meadow flower dependent on calcareous or saline moist soil. LTNWR staff is currently working on the refuge 15-year Comprehensive Conservation Plan (CCP) which will address threats to all documented Plant Species of Concern.
Idahoa scapigera	Trespass cattle and native grazers MNPS Threat Rank 1 (Highly Threatened by one or more activities)	Low	Spring grassland flower dependent on shallow, moist soil. LTNWR staff is currently working on the refuge 15-year Comprehensive Conservation Plan (CCP) which will address threats to all documented Plant Species of Concern.
Allium geyeri var. *geyeri*	Unknown	Low	This plant was just recently designated as a Species of Concern by the MNHP. Both varieties of A. geyeri are present on Lost Trail NWR. Found in moist grasslands and meadows. LTNWR staff is currently working on the refuge 15-year Comprehensive Conservation Plan (CCP) which will address threats to all documented Plant Species of Concern.

Location of Plant Species of Concern on Lost Trail Important Plant Area

Lost Trail NWR Important Plant Area, Flathead County, MT



1. *Silene spaldingii* - Spalding's Catchfly

2. *Silene spaldingii* - Palouse Prairie Savannah Habitat

3. *Silene spaldingii* - Plant Monitoring Plot

4. *Silene spaldingii* - Palouse Prairie Grassland Habitat



5. *Hornungia procumbens* – Hutchinsia

6. *Idahoa scapigera* – Scalepod

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7. *Allium geyeri var geyeri* - Geyer's Onion

References

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Form Submittal:

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