Invasive plants on the Black Hills NF

Species accounts

Black henbane

Black henbane (*Hyoscyamus niger*) is a Mediterranean native that was introduced as an ornamental and medicinal plant in the 17th century. It is an annual or biennial that grows up to three feet tall. The entire plant is covered with greasy hairs. Prolific seed production increases the spread of this plant, as a single plant can produce up to half a million seeds. Black henbane is poisonous to most mammals. It can be found along roadsides, in pastures, fields and disturbed areas. This species is classified as Class B (plants that have a moderate population size within the region, established in some areas but less abundant or absent in other areas) by BHIPP. It can be found in isolated patches across the Black Hills NF.

Brown knapweed

Brown knapweed (*Centaurea jacea*) is a perennial plant in the Aster family with a woody root crown that grows 20 to 48 inches tall. It prefers moist, cooler conditions than other knapweed species. It can be found growing in grasslands, open woods, meadows, pastures, woodland clearings, and in cutover areas of forest. As with other knapweed species it is capable of forming large infestation under favorable conditions. BHIPP classifies it as a Class A invasive (invasive plants that are generally not found in the region or have a relatively low population size making early detection and rapid response to prevent spread warranted). On the Black Hills NF it is found only in the Galena area. Those isolated patches are treated in an attempt to eradicate or at least prevent spread.

Canada thistle

Canada thistle (*Cirsium arvense*) is a colony-forming perennial species with erect stems 1.5 to 4 feet tall. It has extensive underground roots, which are capable of producing new plants. One plant can produce 1,500 to 5,000 seeds that are capable of germinating eight to ten days after flowers open. It grows in barrens, glades, meadows, prairies, fields, pastures, and waste places. It does best in the disturbed upland areas, but also invades wet areas with fluctuating water levels. It is considered a Class C (established in the region) invasive by BHIPP. It is widespread on the Black Hills National Forest, particularly in areas of disturbance.

Common mullein

Common mullein (*Verbascum thapsus*) is a biennial or short-lived perennial found that produces an abundance of long-lived seeds. One plant can produce 100,000 to 180,000 seeds with viability up to 100 years. It adapts easily to a wide variety of open site conditions but is intolerant of shade. Primarily a weed of pastures, hay fields, roadsides, rights-of-way, and abandoned areas. It is classified as Class C by BHIPP. Common mullein is widespread on the Black Hills NF.

Common tansy (priority species)

Common tansy (*Tanacetum vulgare*) is a perennial herb first introduced to North America for use in folk remedies and as an ornamental plant. It invades disturbed sites and is commonly found on roadsides, fence rows, pastures, stream banks and waste areas throughout North America. Common tansy spreads mainly by seeds, and less commonly from creeping rhizomes, to form dense clumps of stems. BHIPP classifies it as a Class B invasive. Infestations have increased in the recent past (particularly on the northern portion of the Black Hills NF) resulting in it being identified as a priority species in 2018.

Dalmatian toadflax

Dalmatian toadflax (*Linaria dalmatica)* is an introduced ornamental, perennial weed from Eastern Europe. It is quick to colonize open sites and is capable of adapting to a wide variety of environmental conditions. Once established, this species can suppress other vegetation mainly by intense competition for limited soil water. Seeds can remain dormant at least 10 years. These dormant seeds can rapidly re-infest a site following control applications, even when pre- emergent herbicides are used, because only a portion of the seeds will germinate in any given year. BHIPP classifies it as a Class B invasive. Dalmatian toadflax infestations are not as prevalent as yellow toadflax infestations on the Black Hills NF.

Diffuse knapweed

Diffuse knapweed (*Centaurea diffusa*) is a biennial or short-lived perennial with abundant seed production. A single plant can produce up to 18,000 seeds. Seeds germinate in both early spring (primarily) and fall. In the fall, diffuse knapweed breaks off at ground level and disperses widely as a tumbleweed. The allelopathic chemical may reduce recovery potential as its presence in the soil may hinder the resurgence of natives. Dormant seeds may germinate and re-infest an area. BHIPP classifies it as a Class B invasive. Few acres are known to occur on the Black Hills NF and even though it is not considered a priority species those few acres are treated in an attempt to eradicate or at least prevent it from spreading further.

Houndstongue

Houndstongue (*Cynoglossum officinale*) is a biennial or short-lived perennial introduced from Eurasia. It has a thick branching taproot, extending to depths of more than 40 inches. Reproduction is by seed. The seeds have a spiny husk and protruding barbs, enabling long distance dispersal as the seeds attach to fur and clothing. Houndstongue is most abundant in areas with more than 10 percent bare ground. It is toxic to livestock and wildlife. BHIPP classifies it as a Class C invasive. It is widespread on the Black Hills NF.

Leafy spurge (priority species)

Leafy spurge (*Euphorbia esula*) is an aggressive, up to three feet tall, creeping perennial with roots often exceeding 25 feet deep. Upon maturation the seed capsule ruptures, dispersing seed as far as 15 feet. Leafy spurge spreads by its extensive root system, by seed and vegetatively at a rate of several feet per year. Leafy spurge invades prairies, pasture and other open areas. It tolerates a wide range of soils from rich, moist soils of riparian zones to nutrient-poor, dry soils of western rangelands. It is most aggressive in semi-arid situations where competition from associated species is less intense. BHIPP classifies it as a Class B invasive.

Musk thistle

Musk thistle (*Carduus nutans*) is a biennial member of the sunflower family that grows to six feet tall. In one growing season a single plant can produce over 100,000 seeds; therefore, it can increase from a single plant to a rather large infestation within two or three years. The seeds can remain viable in the soil for roughly 15 years, which necessitates intensive monitoring of sites and repeat treatments. Musk thistle does best in disturbed areas, but also can invade undisturbed areas. It can occur in almost all habitats except dense forests, high mountains, deserts, and frequently cultivated farmlands. BHIPP classifies it as a Class C invasive. It is widespread on the Black Hills NF.

Orange hawkweed

Orange hawkweed (*Hieracium aurantiacum)* is a showy escaped ornamental native to Europe. It has shallow fibrous roots with aboveground stolons and below ground rhizomes that allow for aggressive vegetative reproduction. It invades different habitats including moist meadows, pasture, hay fields,

roadsides, gravel pits, forested areas, and riparian areas. Plants prefer full sun or partial shade and soils that are well drained and coarse-textured. BHIIPP classifies it as a Class A invasive. The small, known infestations on the Black NF are in the central and northern Black Hills. Those isolated patches are treated in an attempt to eradicate or at least prevent spread.

Oxeye daisy (priority species)

Oxeye daisy (*Leucanthemum vulgare*) is a shallow-rooted rhizomatous perennial. The plant is a prolific seed producer; a single plant can produce up to 26,000 seeds. Reproduction occurs primarily through seed dispersal and germination, although spreading rootstalks contribute to its propagation. Germination occurs throughout the growing season, but most new seedlings emerge in spring. Seeds that do not germinate in the spring may remain viable for many years. BHIPP classifies oxeye daisy as a Class B invasive. It is most prevalent on the northern portion of the Black Hills NF but appears to be moving southward.

Russian knapweed

Russian knapweed (*Rhaponticum repens*) is a deep-rooted, long-lived perennial that reproduces from seed and vegetative root buds. These buds develop into adventitious roots enabling the species to colonize large areas quickly. Russian knapweed produces compounds that suppress growth in native plants, which allows it to form dense monocultures. Russian knapweed does not readily establish in healthy native vegetation, it seems to require disturbance. But once established, it emits allelopathic compounds to inhibit other plants. BHIPP classifies Russian knapweed as a Class A invasive. Very little Russian knapweed is known to occur on the Black Hills NF.

St. John's wort (priority species)

St. Johnswort (*Hypericum perforatum)* is a taprooted perennial weed which reproduces by seeds and short runners. The taproot may reach depths of 4 to 5 feet. Lateral roots grow 2 to 3 inches beneath the soil surface but may reach depths of 3 feet. Developing capsules become very sticky and contain 400 to 500 seeds. Seeds may remain viable in soil for up to 10 years. St. John's wort is classified as a Class B invasive by BHIPP. On the Black Hills NF it is more prevalent in the northern portion of the forest.

Salt cedar

Salt cedar (*Tamarisk* complex) is a deciduous shrub that can grow up to 15 feet in height. It is found in many riparian areas throughout the West. It was introduced as an ornamental and for erosion control. It out-competes native riparian trees by forming deep root systems that can remove underground water not available to native species. It invades streambanks, sandbars, lake margins, wetlands, moist rangelands and saline environments. BHIPP classifies it as a Class B invasive. There are few acres of salt cedar infestation on the Black Hills National Forest.

Spotted knapweed (priority species)

Spotted knapweed (*Centaurea maculosa)* is a biennial or short-lived perennial from central Europe. It is best adapted to well-drained, light-textured soils in areas that receive some summer rainfall. Each plant can produce up to 40,000 seeds per plant. Most seeds fall within 4-foot radius of the parent plant and can remain viable for up to 20 years. Once established, it emits allelopathic compounds to inhibit other plants, eventually resulting in a monoculture of knapweed. BHIPP classifies it as a Class B invasive. Spotted knapweed infestations have been increasing on the Black Hills NF in recent years, resulting in it being identified as a priority species in 2018.

Sulphur cinquefoil

Sulphur cinquefoil (*Potentilla recta)* is a long-lived, taprooted perennial herb. It reproduces primarily through seed; a single plant can produce thousands of seeds annually and it can be spread by roots if they are moved by tillage or on soil-moving equipment. In western North America, sulphur cinquefoil invades native forest, shrub and grassland plant communities as well as disturbed habitats that typically harbor weeds. It can dominate a site within 2 to 3 years. New shoots can develop annually from the outer portion of the main root allowing a plant to live for extended periods as long as 20 years. BHIPP classifies it as a Class B invasive.

Tall buttercup

Tall buttercup (*Ranunculus acris*) is a short-lived perennial native to temperate Asia and Europe. Its short, thick rhizomes enable it to spread vegetatively but its primary mode of spread is likely due to the short-hooked beak on the seed that attaches readily to fur or clothing. Range-wide it can be found in moist fields, pastures, grasslands and sub-irrigated meadows. BHIPP classifies it as a Class A invasive. On the Black Hills NF it is known from isolated patches in the Dumont area. Those isolated patches are treated in an attempt to eradicate or at least prevent spread.

Whitetop/Hoary cress

Whitetop, also known as hoary cress, (*Cardaria draba*) is a member of the mustard family, native to Russia. It likes non-shaded, disturbed conditions, including roadsides, waste places, fields, gardens, feed lots, watercourses, open grasslands, and along irrigation ditches. Hoary cress is a deep-rooted perennial, with roots going 12 to 30 feet deep. One plant can spread 12 feet in its first year. BHIPP classifies it as a Class B invasive. There are few whitetop infestations on the Black Hills NF.

Yellow toadflax (priority species)

Yellow toadflax (*Linaria vulgaris*) is an introduced ornamental that is quick to colonize open sites and is capable of adapting growth to a wide variety of environmental conditions. It is a prolific seed producer - a single plant may produce 15,000 to 30,000 seeds. Once established, this species can suppress other vegetation mainly by intense competition for limited soil water. Mature plants are particularly competitive with winter annuals and shallow-rooted perennials. Seeds can remain dormant for up to ten years. BHIPP classifies it as a Class B invasive. Acres of yellow toadflax infestation have increased substantially on the Black Hills NF in recent years.

Black Hills Invasive Plant Partnership (BHIPP) Priority Management List

Class A	Invasive plants that are generally not found in the region OR have a relatively low population size within the region and are of the highest priority. Early Detection Rapid Response (EDRR) action taken when found.
	BROWN KNAPWEED (*Centaurea jacea*) - isolated patches in the Galena area.
	COMMON TEASEL (D*ipsacus fullonum*) - isolated patches along Bear Butte Creek in Sturgis
	DYERS WOAD (I*satis tinctoria*) - no known populations in the region
	EURASIAN WATERMILFOIL (*Myriophyllum spicatum)* - aquatic plant found in the Missouri River
	GIANT KNOTWEED *(Fallopia sachalinensis)* - isolated patches along Yellow Creek and Whitewood in Lawrence County
	MEADOW SAGE (*Salvia pratensis*) - isolated patch in Vanocker Canyon near Elk Creek
	MEADOW HAWKWEED (*Hieracium caepitosum*) - isolated population identified and treated by BHNF
	MEDUSA HEAD *(Taeniatherum caput-medusae)* - invasive grass in western states, no known populations in the region
	MYRTLE SPURGE (*Euphorbia myrsinites*) - isolated patches landscaped yards in Hot Springs and Rapid City
	ORANGE HAWKWEED (H*ieracium aurantiacum*) - isolated plants in central and northern Black Hills
	PERENNIAL PEPPERWEED *(Lepidium latifolium)* - no known populations in the region
	PURPLE LOOSESTRIFE (L*ythrum salicaria*) - isolated patches along Rapid Creek in Rapid City
	RUSSIAN KNAPWEED (C*entaurea repens*) - isolated patches outside of the Black Hills
	SICKLEWEED *(Falcaria vulgaris)* - isolated patches on the Buffalo Gap National Grasslands
	SPURGE FLAX *(Thymelaea passerina)* - in and around Badlands National Park
	TANSY RAGWORT *(Jacobaea vulgaris)* - no known populations in the region
	TALL BUTTERCUP (*Ranunculus acris*) - isolated patches in the Dumont area
	TALL HAWKWEED (*Hieracium piloselloides*) - isolated population identified and treated by BHNF
	VENTENATA *(Ventenata dubia)* - also known as N. African Grass invasive grass in western states, no known populations in the region
	WILD PARSNIP (Pastinaca sativa) - isolated patches north of Sturgis and Wind Cave NP area
	YELLOW FLAG IRIS (I*ris pseudacorus*) - isolated patches along Lime and Rapid Creeks in Rapid City and small patch in Hot Springs
	YELLOW STARTHISTLE (C*entaurea solstitialis*) - no know populations in the region
Class B	Invasive plants that have a moderate population size within the region, established in some areas but less abundant or absent in other areas. Eradicate where less abundant, suppress in areas where established through integrated management tactics (herbicide, mechanical, biological control).
	ABSINTH WORMWOOD *(Artemisia absinthium)* / PERENNIAL SOW THISTLE *(Sonchus arvensis)*

	BLACK HENBANE (*Hyoscyamus niger*)	PHRAGMITES *(Phragmites)*
	COMMON TANSY *(Tanacetum vulgare)*	SALT CEDAR *(Tamarix spp.)*
	*DALMATIAN TOADFLAX (*Linaria dalmatica*)	SPOTTED KNAPWEED *(Centaurea maculosa)*
	DIFFUSE KNAPWEED (*Centaurea diffusa*)	ST JOHN'S-WORT *(Hypericum perforatum)*
	GARLIC MUSTARD *(Alliaria petiolata)*	SULFUR CINQUEFOIL (*Potentilla recta)*
	HOARY CRESS *(Cardaria draba)*	WHITE HOREHOUND *(Marrubium vulgare)*
	LEAFY SPURGE *(Euphorbia esula)*	*YELLOW TOADFLAX *(Linaria vulgaris)*
	OXEYE DAISY *(Leucanthemum vulgare)*	* *Including all hybrid species of Toadflax*
Class C	Invasive plants that are established in the region. Containment of established areas and suppress smaller isolated patches through integrated management tactics (herbicide, mechanical, biological control).	
	BABY BREATH *(Gypsophila)*	HOUNDSTONGUE *(Cynoglossum officinale)*
	BULL THISTLE *(Cirsium vulgare)*	MUSK THISTLE *(Carduus nutans)*
	CANADA THISTLE *(Cirsium arvense)*	POISON HEMLOCK *(Conium maculatum)*
	CHICORY *(Cichorium intybus)*	PUNCTUREVINE *(Tribulus terrestris)*
	COMMON BURDOCK *(Arctium minus)*	SCOTCH THISTLE *(Onopordum acanthium)*
	COMMON MULLEIN *(Verbascum thapsus)*	WATER HEMLOCK *(Cicuta spp.)*
	CURLY PONDWEED *(Potamogeton crispus)*	