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SPECIES: *Rubus discolor*

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Introductory

SPECIES: *Rubus discolor*

AUTHORSHIP AND CITATION :

Tirmenstein, D. 1989. *Rubus discolor*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, September 24].

ABBREVIATION :

RUBDIS

SYNONYMS :

Rubus procerus
Rubus macrostemon
Rubus fruticosus
Rubus thyrsoanthus

SCS PLANT CODE :

RUDI2

COMMON NAMES :

Himalayan blackberry

TAXONOMY :

The currently accepted scientific name of the Himalayan blackberry is *Rubus discolor* Weihe and Nees [[17](#)]. Infrataxa have not been described for this species.

Himalayan blackberry hybridizes with a number of *Rubus* species including *R. thyrsoiger*, *R. calvatus*, and *R. schlechtendalii* [[6](#)].

LIFE FORM :

Shrub

FEDERAL LEGAL STATUS :

No special status

OTHER STATUS :

NO-ENTRY

DISTRIBUTION AND OCCURRENCE

SPECIES: Rubus discolor

GENERAL DISTRIBUTION :

The Himalayan blackberry is a native of the Old World [3,31]. However, it has become widely naturalized in the Northeast from Delaware to Virginia, and in the Pacific Northwest [3]. The Himalayan blackberry occurs from northern California through southern British Columbia eastward to Idaho. It is particularly widespread west of the Cascades [14] and is now abundant along the Snake River in southeastern Washington [13]. It is also locally established in parts of Utah and perhaps Arizona [19,31].

ECOSYSTEMS :

FRES10 White - red - jack pine
FRES13 Loblolly - shortleaf pine
FRES15 Oak - hickory
FRES18 Maple - beech - birch
FRES24 Hemlock - Sitka spruce
FRES28 Western hardwoods

STATES :

CA DE ID MD OR UT VA WA BC

BLM PHYSIOGRAPHIC REGIONS :

1 Northern Pacific Border
2 Cascade Mountains
3 Southern Pacific Border
4 Sierra Mountains
5 Columbia Plateau
6 Upper Basin and Range
8 Northern Rocky Mountains
9 Middle Rocky Mountains
12 Colorado Plateau

KUCHLER PLANT ASSOCIATIONS :

K001 Spruce - cedar - hemlock forest
K002 Cedar - hemlock - Douglas-fir forest
K102 Beech - maple forest
K106 Northern hardwoods
K111 Oak - hickory - pine forest

SAF COVER TYPES :

- 21 Eastern white pine
- 60 Beech - sugar maple
- 64 Sassafras - persimmon
- 78 Virginia pine - oak
- 79 Virginia pine
- 80 Loblolly pine - shortleaf pine
- 81 Loblolly pine
- 82 Loblolly pine - hardwood
- 109 Hawthorn
- 222 Black cottonwood - willow
- 224 Western hemlock
- 226 Coastal true fir - hemlock
- 227 Western redcedar - western hemlock
- 230 Douglas-fir - western hemlock

SRM (RANGELAND) COVER TYPES :

NO-ENTRY

HABITAT TYPES AND PLANT COMMUNITIES :

Associated species: A wide variety of weedy species occur with Himalayan blackberry on disturbed sites in the Northeast and Pacific Northwest. The following species commonly grow with Himalayan blackberry in riparian zones of California: trailing blackberry (*Rubus ursinus*), evergreen blackberry (*R. laciniatus*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*P. trichocarpa*), oaks (*Quercus* spp.), arroyo willow (*Salix lasiolepis*), and other willows (*Salix* spp.) [[18](#),[22](#),[28](#),[32](#)].

MANAGEMENT CONSIDERATIONS

SPECIES: *Rubus discolor*

IMPORTANCE TO LIVESTOCK AND WILDLIFE :

Wildlife: The Himalayan blackberry provides food and cover for many wildlife species. Fruits of blackberries are eaten by numerous birds, including the northern bobwhite, scaled quail, ruffed grouse, sharp-tailed grouse, California quail, ring-necked pheasant, blue grouse, gray (Hungarian) partridge, band-tailed pigeon, gray catbird, northern cardinal, American robin, yellow-breasted chat, pine grosbeak, summer tanager, orchard oriole, brown thrasher, thrushes, and towhees [[1](#),[30](#),[33](#)]. Mammals such, as the coyote, common opossum, red squirrel, raccoon, gray fox, red fox, skunks, squirrels, chipmunks, and black bear, also feed on blackberries [[30](#),[33](#)].

Deer, rabbits, and mountain beaver consume the buds, stems, and leaves of blackberries [[30](#),[33](#)]. The Himalayan blackberry is considered a primary elk browse in parts of California, where it is used primarily during the winter months [[12](#)]. Porcupines and beaver feed on the cambium, buds, and stems of many species of blackberries [[30](#)].

Livestock: Blackberries, in general, provide only poor browse for

domestic livestock [30]. However, the specific value of Himalayan blackberry has not been documented. In some areas, this shrub may represent a barrier to the movement of livestock. Domestic sheep occasionally become entangled in the spiny foliage of this sprawling shrub [13].

PALATABILITY :

Fruits of blackberries are highly palatable to many birds and mammals. Palatability of Himalayan blackberry browse has not been determined.

NUTRITIONAL VALUE :

NO-ENTRY

COVER VALUE :

Dense blackberry thickets form suitable nesting sites for many species of birds [33]. Mammals, such as rabbits, red squirrel, black bear, and beaver, use blackberry thickets as hiding or resting sites [30].

VALUE FOR REHABILITATION OF DISTURBED SITES :

Most blackberries are valuable for preventing soil erosion on barren, infertile, disturbed sites [3,30]. The Himalayan blackberry has been successfully planted in riparian areas along Columbia River impoundments in north-central Washington [5]. Good survival was observed up to 5 years after the initial plantings were made [5].

Blackberries may be propagated vegetatively, transplanted, or seeded onto disturbed sites. According to Brinkman [3], seed which has been scarified can be successfully planted in the late summer or early fall. Seed planted in the fall does not require cold treatment. Previously stratified and scarified seed can be planted in the spring. Good results have been obtained after seeds were planted with a drill and covered with 1/8 to 3/16 inch (0.3-0.5 cm) of soil [3].

OTHER USES AND VALUES :

Himalayan blackberry is the most commonly harvested wild blackberry in western Washington and Oregon, although its fruit is reportedly less flavorful than that of the native trailing blackberry (*Rubus ursinus*) [7]. It is a preferred berry for fruit pies [7]. The fruit, roots, and stems of blackberries have been used to make various medicinal preparations [3]. Many blackberries are grown in gardens or as ornamentals. Himalayan blackberry was first cultivated in 1890 [3].

OTHER MANAGEMENT CONSIDERATIONS :

Competition: The introduced Himalayan blackberry has spread aggressively in many parts of the United States. It is now regarded as a serious pest in parts of the Pacific Northwest, particularly west of the Cascades [14].

Chemical control: Good to excellent control of the Himalayan blackberry can be obtained through the use of glyphosate, picloram + 2,4-D, triclopyr ester, or triclopyr amine [4].

BOTANICAL AND ECOLOGICAL CHARACTERISTICS

SPECIES: *Rubus discolor*

GENERAL BOTANICAL CHARACTERISTICS :

The Himalayan blackberry is a robust, clambering or sprawling, evergreen shrub which grows up to 9.8 feet (3 m) in height [25,31]. Leaves are pinnately to palmately compound, with three to five broad leaflets [25,31]. Mature leaves are green and glaucous above but tomentose beneath [31].

Stems of most blackberries are biennial. Sterile first-year stems, or primocanes, develop from buds at or below the ground surface and bear only leaves [11]. During the second year, lateral branches, known as floricanes, develop in the axils of the primocanes, and produce both leaves and flowers [11].

Perfect flowers are borne in clusters of 3 to 20 [24,31]. Flowers are most commonly white, but rose or reddish flowers also occur [24,31]. Ripe fruit, commonly referred to as "berries," are soft, shiny black and composed of an aggregate of large succulent drupelets [3,25].

RAUNKIAER LIFE FORM :

Hemicryptophyte

REGENERATION PROCESSES :

The Himalayan blackberry is capable of extensive and vigorous vegetative regeneration [32]. Sexual reproduction may also be important. Reproductive versatility is well represented in the *Rubus* genus, with sexual reproduction, parthenogenesis (development of the egg without fertilization), pseudogamy (a form of apomixis in which pollination is required), and parthenocarpy (production of fruit without fertilization), occurring widely [6]. The following types of reproduction have been documented in blackberries: (1) sexual reproduction, (2) nonreduction at meiosis on the female, male, or both sides, (3) apomixis (seeds contain embryos of maternal, rather than sexual origin) with segregation, (4) apomixis without segregation, and (5) haploid parthenogenesis [6]. These modes of asexual reproduction contribute significantly to the aggressive, vigorous spread of blackberries.

Vegetative regeneration: The mostly biennial stems of blackberries typically develop from perennial rootstocks or creeping stems [11]. Most species within the *Rubus* genus are capable of sprouting vigorously from root or stem suckers, or rooting stem tips [11]. Although not specifically documented for the Himalayan blackberry, a similar response is probable given the plant's morphology and the speed at which postdisturbance establishment and spread occurs. The Himalayan blackberry is known to spread extensively by trailing stems which root at the nodes [32]. Rapid vegetative spread occurs even in the absence of disturbance.

Seed production: Most blackberries produce good seed crops nearly every year [3]. Immature fruit of the Himalayan blackberry is red and hard, but at maturity, fruit becomes shiny black, soft, and succulent [3]. Individual drupelets form an aggregate up to 0.8 inches (2 cm) in length [3,24]. Cleaned seed averages approximately 147,000 per pound (323,789/kg) [3].

Germination: Blackberry seeds have a hard impermeable coat and a dormant embryo [3]. Consequently, germination is often slow. Most blackberries require, as a minimum, warm stratification at 68 to 86 degrees F (20 to 30 degrees C) for 90 days, followed by cold stratification at 36 to 41 degrees F (2 to 5 degrees C) for an additional 90 days [3]. These conditions are frequently encountered naturally as seeds mature in summer and remain in the soil throughout the cold winter months. Laboratory tests indicate that exposure to sulfuric acid solutions or sodium hyperchlorite prior to cold stratification can enhance germination [3].

Seedbanking: Seeds of most blackberries can remain viable when stored in the soil for a period of at least several years [2]. However, the specific length of viability has not been documented for the Himalayan blackberry.

Seed dispersal: Seeds of blackberries are readily dispersed by gravity and by many species of birds and mammals. The large succulent fruits are highly sought-after and, after they mature, rarely remain on the plant for long [3]. A hard seedcoat protects the embryo even when the seeds are ingested. Evidence suggests that the action of avian gizzards and exposure to mammalian digestive acids provide scarification which may actually enhance germination [1].

SITE CHARACTERISTICS :

The Himalayan blackberry typically grows in open weedy sites, such as along field margins, railroad right-of-ways, roadsides, and on abandoned farms [6,14,31]. It is also common in riparian woodlands and intertidal zones of central California [18,22,28,32].

Soils: Blackberries grow well on a variety of barren, infertile soil types [3]. These shrubs tolerate a wide range of soil pH and texture, but do require adequate soil moisture [33]. The Himalayan blackberry appears to be tolerant of periodic flooding by brackish or fresh water [32].

Elevation: Elevational ranges of the Himalayan blackberry have been documented as follows for two western states [19,31]:

> 6,000 feet (1,829 m) in AZ
from 2,788 to 5,000 feet (850-1,525 m) in UT

SUCCESSIONAL STATUS :

Blackberries are generally most prevalent in early seral communities. In the Northeast, blackberries are aggressive invaders in old field communities [33]. In the West, the introduced Himalayan blackberry commonly occurs as an early seral species in relatively open disturbed areas, such as along roadways or on abandoned homesteads [31]. This blackberry also grows in certain riparian areas of California where it can apparently establish and persist despite periodic inundation by fresh or brackish water [32]. This periodic flooding can produce relatively long-lived early seral communities conducive to the growth and spread of blackberries. The Himalayan blackberry is one of the few woody plants pioneering certain intertidal zones of the lower Sacramento River [32]. Little is known about the successional status of the Himalayan blackberry in its native Europe.

SEASONAL DEVELOPMENT :

The Himalayan blackberry generally flowers from June to August [3,13]. Fruit ripens in August and September [3], with seed dispersal in the fall.

FIRE ECOLOGY

SPECIES: *Rubus discolor*

FIRE ECOLOGY OR ADAPTATIONS :

Blackberries are typically observed in greatest abundance following fire or other types of disturbance. The Himalayan blackberry is well adapted to invade recently burned sites. Most blackberries sprout vigorously after fire [9]. Various regenerative structures located at or below the ground surface enable this shrub to sprout, even when aboveground foliage is totally consumed by fire. Sprouting through rooting stem nodes [32] is also likely if even portions of the aboveground stem remain undamaged.

Most blackberries store seed in seedbanks. Plants can readily reoccupy recently burned sites through seed protected from the direct effects of fire by overlying soil or duff. Seed generally remains viable for long periods of time [2] and germinates in abundance after disturbance. The relatively large, sweet, succulent fruits of blackberries amply reward animal dispersers [16], and some postfire reestablishment through seed transported from off-site is also probable.

POSTFIRE REGENERATION STRATEGY :

Tall shrub, adventitious-bud root crown
Rhizomatous shrub, rhizome in soil
Geophyte, growing points deep in soil
Initial-offsite colonizer (off-site, initial community)
Ground residual colonizer (on-site, initial community)

FIRE EFFECTS

SPECIES: *Rubus discolor*

IMMEDIATE FIRE EFFECT ON PLANT :

Although Himalayan blackberry plants may be top-killed, actual mortality appears to be uncommon because of the prolific sprouting ability of this shrub.

Most Himalayan blackberry seed stored on-site in the soil or duff is probably unharmed by fire.

DISCUSSION AND QUALIFICATION OF FIRE EFFECT :

NO-ENTRY

PLANT RESPONSE TO FIRE :

Vegetative response: The Himalayan blackberry is capable of rapid, extensive spread through trailing aboveground stems which root at the nodes [32]. Plants are presumably able to regenerate vegetatively and resume growth when portions of the aboveground stems remain undamaged. Most blackberries readily regenerate vegetatively from underground structures such as roots, rhizomes, or rootstocks when aboveground foliage is removed [11]. Regeneration through various underground structures, which are well protected from the direct effects of fire by overlying soil, is probable even when the aboveground vegetation is totally consumed by fire.

Seedling establishment: Exposed mineral soil can provide a favorable seedbed, and extensive postfire establishment of on-site seed is commonly observed in many blackberries. Birds and mammals may also transport some viable seed to the site.

Rate of postfire recovery: The weedy Himalayan blackberry is described as a "serious pest" which is well represented on many types of disturbed sites [7,14]. Its role as a vigorous invader on waste ground suggests the potential for rapid postfire recovery in many areas.

DISCUSSION AND QUALIFICATION OF PLANT RESPONSE :

NO-ENTRY

FIRE MANAGEMENT CONSIDERATIONS :

Wildlife species which consume large amounts of blackberries are often benefited by fire [20].

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