

Ecological site R009XY031ID Stony Riparian POBAT-ALNUS/ELYMU

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Classification relationships

No data.

Associated sites

R009XY001ID	Shallow Stony Loam 16-22 PZ
R009XY002ID	North Slope Loamy 16-22 PZ
R009XY003ID	Loamy 16-22 PZ
R009XY008ID	Schist 16-22 PZ PSSPS-FEID
R009XY010ID	South Slope Schist 16-22 PZ PSSPS-POSE
R009XY017ID	Very Shallow 12-22 PZ PSSPS-POSE

Similar sites

R009XY033ID	Stony Bottomland SYAL/PSSP6
R009XY032ID	Riparian DECA5-CAREX

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on gently sloping flood plains in canyon and small valley bottoms and along low benches adjacent to stream bottoms. Slopes are generally 1-2 percent. Elevations are 800 to 1200 feet (225-375 meters).

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Valley floor
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Occasional to frequent
Elevation	800–1,200 ft
Slope	1–2%

Water table depth	36–60 in
Aspect	Aspect is not a significant factor

Climatic features

The elevation of MLRA 9 ranges from 2000 to 4000 feet with an average elevation of 3000 feet. Elevation along major streams averages only 650 feet above sea level. Average annual precipitation ranges from 20 to 25 inches with an average of 23 based on 9 long term climate stations located throughout the MLRA. Summers are relatively dry while precipitation is evenly distributed between fall, winter, and spring.

The maximum average annual temperature is 58 degrees Fahrenheit while the average minimum temperature is 35 degrees F. The average annual temperature is 46.8 degrees F. The frost free period ranges from 107 to 134 days and the freeze free period ranges from 143 to 173 days.

Table 3. Representative climatic features

Frost-free period (average)	134 days
Freeze-free period (average)	173 days
Precipitation total (average)	26 in

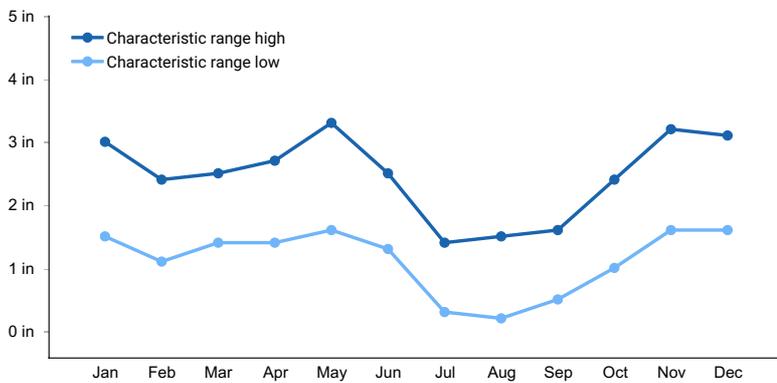


Figure 1. Monthly precipitation range

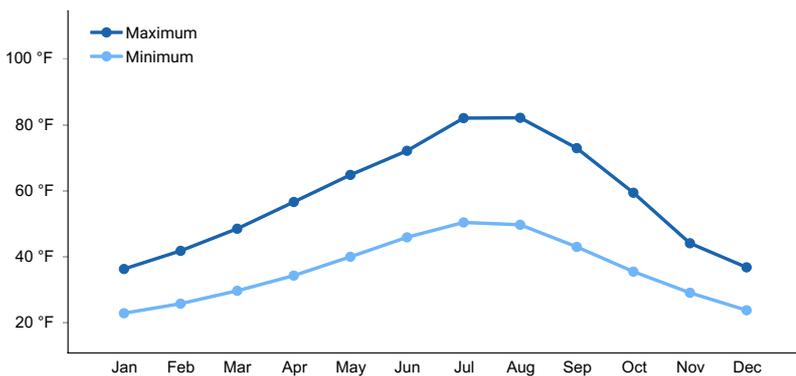


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

This site is dependent on a water table at 3 to 5 feet. The black cottonwood overstory is dependent on frequent flooding with brief to prolonged duration. The soils must be coarse to allow aerated water to pass the root system.

Wetland Description: System Subsystem Class Sub-class

Palustrine NA Forested Wetland

Stream Type: Intermittent or perennial

Soil features

The soils in this site are somewhat poorly drained to moderately well drained and have rapid to very rapid permeability. They are usually associated with water courses. Soil depth is typically over 60 inches but bedrock can be as shallow as 20 inches in some areas. The soils are mainly of mixed gravelly and sandy alluvium with stones and cobbles common. The soils usually have very little development. The flood plains have water tables at 3 to 5 feet during the spring and early summer. These soils are commonly flooded for short periods in the spring. They commonly have deposition of sediments during the floods. Plant growth depends more on the presence of the fluctuating water table than the moisture holding capacity of the soil, available water capacity is very low. The surface layers typically are neutral in PH. These soils are characterized by xeric moisture and mesic temperature regimes.

Soil Series Correlated to this Ecological Site.

Joseph

Table 4. Representative soil features

Surface texture	(1) Extremely cobbly loamy coarse sand
Family particle size	(1) Sandy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Rapid to very rapid
Soil depth	20–60 in
Surface fragment cover <=3"	25–45%
Surface fragment cover >3"	30–40%
Available water capacity (0-40in)	0.4–2 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	45–70%
Subsurface fragment volume >3" (Depth not specified)	30–40%

Ecological dynamics

The dominant visual aspect of this site is black cottonwood and willows. This site commonly occurs in complex with dry meadow and meadow range sites in the riparian zone. Composition by weight is approximately 10 percent grass, 5 percent forbs, 10 percent shrubs, and 75 percent trees.

During the last few thousand years, this site has evolved in a semi-arid climate characterized by dry summers and cold, wet winters. The site has evolved on flood plains that have occasional to frequent and brief to very brief flooding. This flooding scours some areas and deposits sediment in other areas. This disturbance is necessary to provide exposed, moist mineral soil with full sunlight to germinate seedlings of black cottonwood and willows. Depositional areas can bury parts of limbs and twigs to start new plants. Scouring can also expose existing tree roots that will sprout. A water table at 1.5 to 5 feet is necessary to provide season long moisture for the growth of tree species. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include mule deer, Rocky Mountain elk, and beaver.

Fire has played a role in maintaining the plant community by also providing bare mineral soil with full sunlight to germinate black cottonwood and willow species. Fire can cause tree sprouting to provide regeneration. The fire frequency on the site is dependent on the frequency of fire on adjacent range sites and moisture in the fuels on the site. The normal fire frequency is 25-100 years.

The Reference State (State 1), moves through many phases depending on the natural and man-made forces that impact the community over time. State 1, described later, indicates some of these phases. The Reference Plant Community Phase is Phase A. This plant community is dominated by an overstory of black cottonwood. The shrub understory is dominated with willows, alder, redosier dogwood, Woods' rose, common snowberry, and black hawthorne. The herbaceous layer contains a variety of grasses and forbs but none are dominant. The plant species composition of Phase A is listed later under "Reference Plant Community Phase Plant Species Composition".

The total annual production is 8000 pounds per acre (8960 kilograms per hectare) in a normal year. Production in a favorable year is 10,000 pounds per acre (11200 kilograms per hectare). Unfavorable year production is about 6000 pounds per acre (6720 kilograms per hectare). Structurally, trees are very dominant followed by shrubs co-dominant with cool season deep-rooted perennial grasses, followed by perennial forbs.

This site is suited for livestock grazing in late spring, summer, and fall. This site is usually heavily used by livestock, particularly in the summer. Prescribed grazing must be planned to avoid degradation of the site. Special management should be used to protect the adjacent water courses and the associated values. This is an important site for wildlife for food and cover. If the site is associated with perennial streams, a fisheries resource could also be present. The site has high value for recreation such as camping and picnicking. Hunting opportunities are good where the site is isolated from human activity. Degradation of the site can occur with high recreational use, improper grazing management, and down cutting of the adjacent stream course or upper watershed conditions that alter the flood frequency or duration.

Impacts on the Plant Community:

Influence of fire:

This site can burn from wildfire. Burning usually occurs with fire spreading from an adjacent range site when the fuel moisture levels are low in this site. Since the plant community on this site is strongly influenced by a water table, this enables the deep-rooted plants to grow throughout most of the summer. Because of this, the fuels often are not dry enough to burn so the fire frequency is usually longer than on adjacent range sites. Most of this site is associated with the Palouse grasslands and the normal fire frequency is estimated at 25-100 years. A wildfire can kill most of the above ground plant material. Most of the trees and shrubs adapted to the site are root-sprouting plants and regenerate rapidly. The herbaceous layer has significant mortality but this provides exposed mineral soil for black cottonwood and willows to establish new plants.

Influence of improper grazing management:

Season-long grazing and/or excessive utilization can be very detrimental to this site. Fall use, year after year, will result in excessive utilization on the black cottonwood and willow regeneration. This may lead to a single age class stand of trees. Uncontrolled beaver populations may eliminate the overstory component. Due to improper grazing management, grasses, forbs, shrubs, and young trees can all decline in the plant community. Shrubs usually increase initially, but with continued improper management, will decline.

Continued improper grazing management will result in a stand of forbs and Kentucky bluegrass with reduced vigor. The ability of the community to withstand seasonal flooding is reduced and down cutting of adjacent streams can result. This down cutting will lower the water table and thus reduce the potential of the site. This site is particularly difficult to manage because animals seek out the site for shade and it is usually adjacent to water.

Proper grazing management that addresses frequency, duration, and intensity of grazing can maintain the integrity of the plant community and the water table on which it is dependent. Upstream watershed conditions must be maintained to have normal run-off events including moderate flooding.

Weather influences:

Because of the deep soils, the influence of the water table, seasonal flooding and run-on, the production of this site changes little during wet or dry precipitation years. The overall production can be adversely influenced with prolonged drought. Prolonged drought can increase fire frequency. Overall plant composition is normally not affected when perennials have good vigor.

Below normal temperatures in the spring can have an adverse impact on total production, regardless of the run-off and flooding. An early, hard freeze can occasionally kill some plants. An early frost can stop the growth of trees and shrubs.

Influence of Insects and disease:

Periodic disease and insect outbreaks can affect vegetation health. An outbreak of a particular insect is usually influenced by weather but no specific data for this site is available. Black cottonwood is susceptible to a variety of diseases and insects. Cankers, leaf beetles, and cottonwood borer may impact the community.

Influence of noxious and invasive plants:

Annual and perennial invasive species can compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory. There are several noxious or invasive plants that are adapted to this site.

Influence of wildlife:

This site is important for many species of mammals and birds for food and life cycles. Total numbers are seldom high enough to adversely affect the plant community. The site is primarily used in the late spring, summer, and fall by big game. Many birds use the site for food, nesting, or brood rearing in the late spring, summer, and fall.

Watershed:

The largest threat to degradation of this site is the lowering of the water table and changes in flooding characteristics either from incised channels or upstream conditions. Off-site conditions can affect the gradient of adjacent stream channels that can affect the water table. If the perennial grass, sedge, shrub, and tree cover is depleted, down cutting can be accelerated within the site. High run-off events from the adjacent uplands can severely damage or change the normal stream channel on the site. As the water table is lowered, productive potential is lost. Eventually the water table is below the root zone of the adapted perennial grasses, shrubs, and trees. These are ultimately replaced by perennial forbs and shallow rooted grasses. Extreme down cutting and lowering of the water table can move the site across the threshold to a new, less productive site. Severe down-cutting can result in a plant community that resembles an upland site. Reducing the frequency of flooding can adversely effect the regeneration of black cottonwood, leading to a decadent overstory of old trees with no young trees for replacement.

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.

Phase A to B. Develops with much reduced flooding frequency.

Phase A to C. Develops with improper grazing management.

Phase A to D. Develops with wildfire.

Phase A to E. Develops with no fire and reduced flooding frequency.

Phase A to F. Develops with an uncontrolled beaver populations.

Phase B to A. This will occur with normal flooding frequency returning and prescribed grazing.

Phase C to A. This results from prescribed grazing.

Phase D to A. Results from no recent fires and prescribed grazing.

Phase E to A. This will occur with prescribed burning and prescribed grazing.

Phase F to A. Results from controlling the beaver population and prescribed grazing.

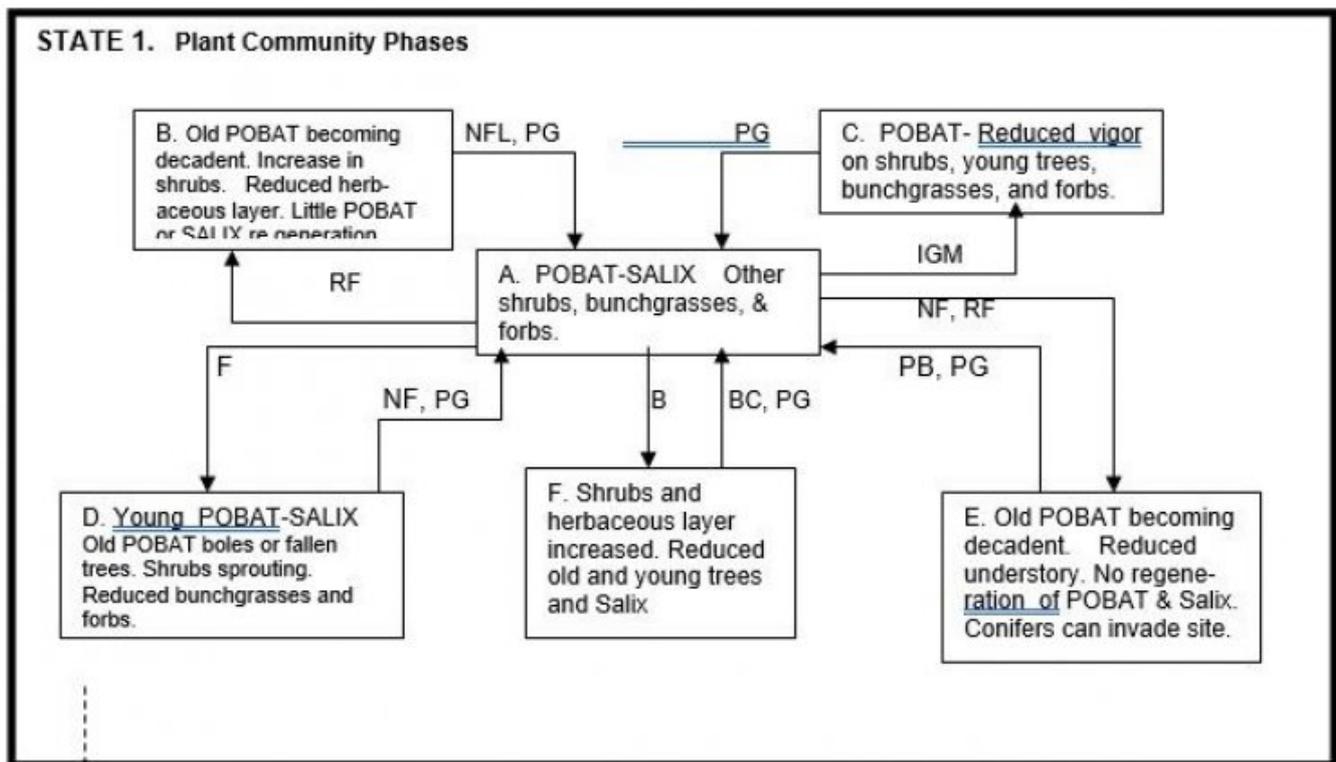
State 1 to State 2. This results from a deeply incised channel that reduces the water table and significantly reduces the flood frequency. The flood frequency can also be reduced from significant changes in the upper watershed that significantly changes runoff events, such as juniper invasion, instream water diversions, or prolonged drought. Improper grazing management has continued. Uncontrolled beaver populations can take out all black cottonwoods, other trees, and some understory plants. Improper grazing management can cause down cutting which results in a lowered water table. There is reduced surface soil scouring and sediment deposition. The state is similar to early seral plant communities of Loamy Bottom ecological site. Some areas that are very stony may resemble early seral shallow sites.

The site has crossed the threshold. This state cannot be returned to State 1 without raising the water table and restoring flood frequency. This might be done over time using structures or bio-engineering practices, but the plant community may take many years to approach the plant community in State 1.

Practice Limitations:

Use of equipment is usually not feasible for seeding. Hand seeding or aerial seeding can be considered following a fire. Brush management is not recommended. The brush has high value for stream bank stabilization and channel protection. Special management practices need to be used to protect this site from deterioration.

State and transition model



Deeply Incised channel with little or no flooding occurring and Water table lowered below 5 ft. Caused by continued IGM, Upper watershed conditions or uncontrolled beaver populations or complete conifer or juniper invasion.

STATE 2. Dead POBAT snags-few shrubs and understory of invasive species. No regeneration POBAT or Salix.

PLANT LEGEND STATES 1 & 2

POBAT - Black Cottonwood
SALIX - Willow

LEGEND

- IGM- Improper grazing management
- PG- Prescribed grazing
- RF- Reduced flooding frequency
- NFL- Normal flooding frequency
- F - Fire
- NF- No Fire
- B - Uncontrolled beaver populations
- BC - Controlled beaver populations
- PB - Prescribed burning

- Threshold
- > Community pathway (within states)
- Reversible transition
- > Irreversible transition

**State 1
 State 1 Phase A**

**Community 1.1
 State 1 Phase A**

State1, Phase A. Reference Plant Community Phase. This plant community is dominated by a mixed age stand of black cottonwood. The shrub layer is dominated by willows and subdominants include various amounts of Woods' rose, alder, black hawthorne, redosier dogwood, currant, and serviceberry. The herbaceous layer contains a wide variety of grasses and forbs with none being dominant. The variety of shrubs, grasses and forbs is due to the variability of soil textures and depths due to flooding deposition and/or scouring. Flooding is frequent and the duration can be brief to prolonged. Fire can occur when adjacent sites burn and the normal fire frequency is estimated at 25-100 years.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Tree	4500	6000	7500
Shrub/Vine	600	800	1000
Grass/Grasslike	600	800	1000
Forb	300	400	700
Total	6000	8000	10200

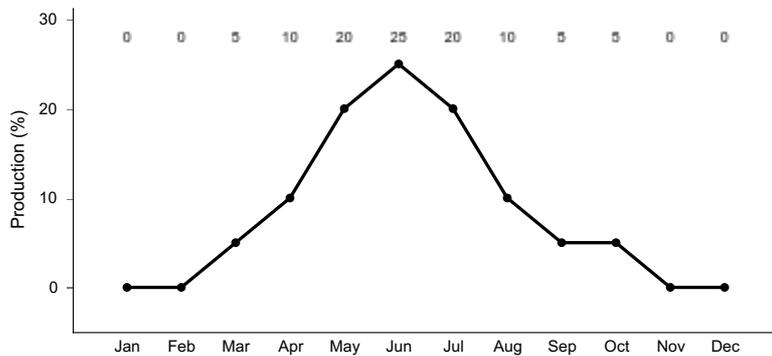


Figure 4. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

State 2
State 1 Phase B

Community 2.1
State 1 Phase B

State 1. Phase B. This plant community is dominated in the overstory with old black cottonwood becoming decadent. The shrub layer has increased. The herbaceous layer is reduced due to increased shading. There is little black cottonwood or willow regeneration. This community has developed from much reduced flooding frequency due to channel down cutting, upstream water diversions or other upper watershed conditions. The water table is lower than in Phase A.

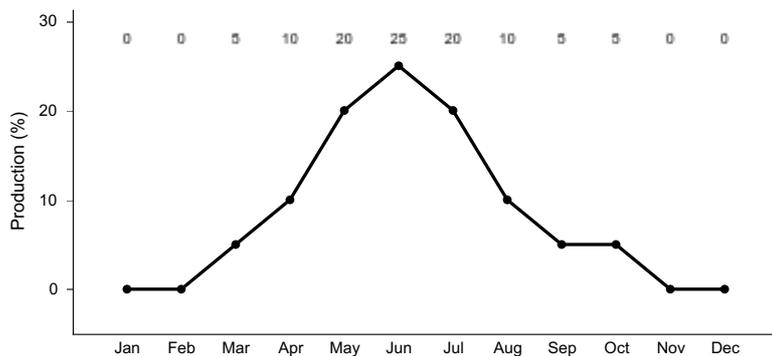


Figure 5. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

State 3
State 1 Phase C

Community 3.1
State 1 Phase C

State 1, Phase C. This plant community is dominated in the overstory with black cottonwood. The shrub layer is

dominated by *Salix* spp. with Woods' rose, alder, black hawthorne, and redosier dogwood in small amounts. The shrubs have reduced vigor and there are twigs or branches that have sprouted from the base. A variety of grasses can occur depending on the variability of soils within the site. Production is reduced and vigor is lower than Phase A. Forbs are increasing. There are few young trees. This community has developed with improper grazing management.

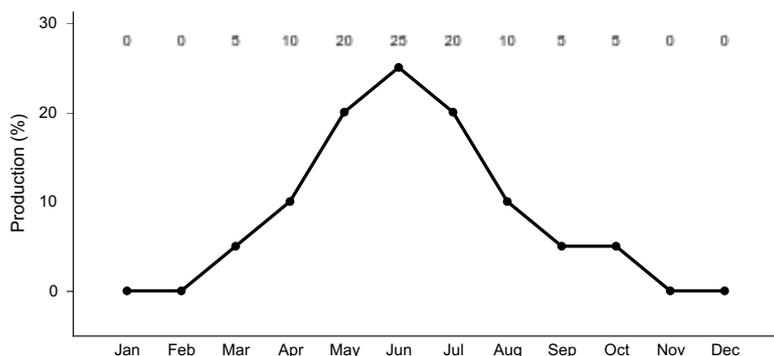


Figure 6. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

State 4

State 1 Phase D

Community 4.1

State 1 Phase D

State 1. Phase D. This plant community has an overstory of dead black cottonwood boles or fallen trees. Young black cottonwood trees, either from sprouting or from new seedlings, dominate the aspect. Willows are subdominant with individual plants sprouting from the base. Other sprouting shrubs may be present, but some shrubs have been reduced or died from the fire. Bunchgrasses and forbs have been reduced or have died. This plant community has developed with a recent wildfire.

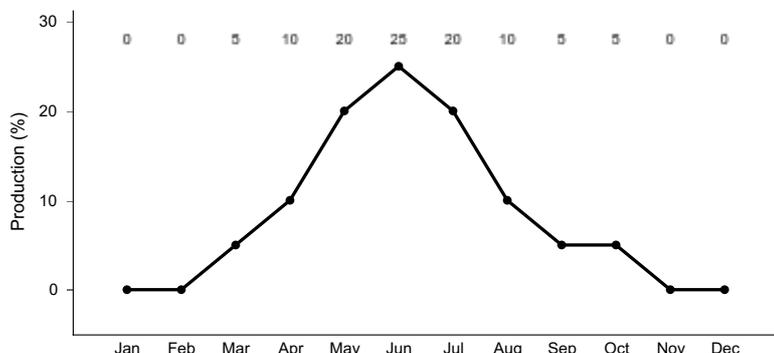


Figure 7. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

State 5

State 1 Phase E

Community 5.1

State 1 Phase E

State 1. Phase E. This plant community is dominated by an overstory of mature, sometimes decadent, black cottonwood. The shrub layer has increased and bunchgrasses and forbs have been reduced due to shading from the shrubs. There is little or no regeneration of black cottonwoods or willows and conifers can invade the site. This plant community has developed with a significant reduction in flooding frequency and no fire.

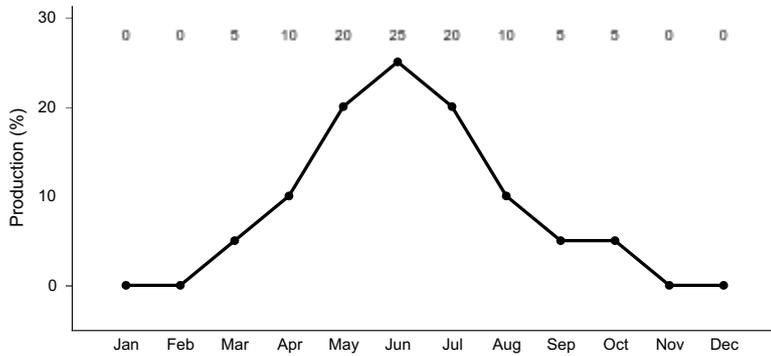


Figure 8. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

**State 6
State 1 Phase F**

**Community 6.1
State 1 Phase F**

State 1. Phase F. The overstory of black cottonwood and other trees has been significantly reduced. The regeneration of these plants has also been significantly reduced. Salix spp. has been impacted similarly. Shrubs, grasses, and forbs have increased. This community is the result of uncontrolled beaver populations.

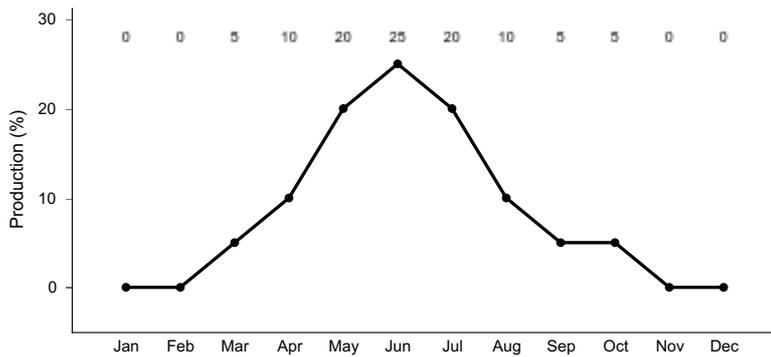


Figure 9. Plant community growth curve (percent production by month). ID0117, BLACK COTTONWOOD. STATE 1.

**State 7
State 2**

**Community 7.1
State 2**

State 2. This plant community has dead black cottonwood in the overstory or dead black cottonwoods have fallen to the ground. There is no regeneration of black cottonwoods or salix spp. and shrubs have been reduced significantly. Bunchgrasses have been removed and forbs and invasive species have increased. Conifers may have invaded the site. This plant community has developed through continued improper grazing management, lowered water table, and reduced frequency of flooding. The reduced water table and/or reduced flooding is caused by an incised channel and/or upstream conditions that have changed the flooding frequency. The community has crossed the threshold to a new state. It is not economically feasible to return this state to State 1. With evergreen conifer invasion, the sites would be similar to woodland sites with an understory of invasive plants.

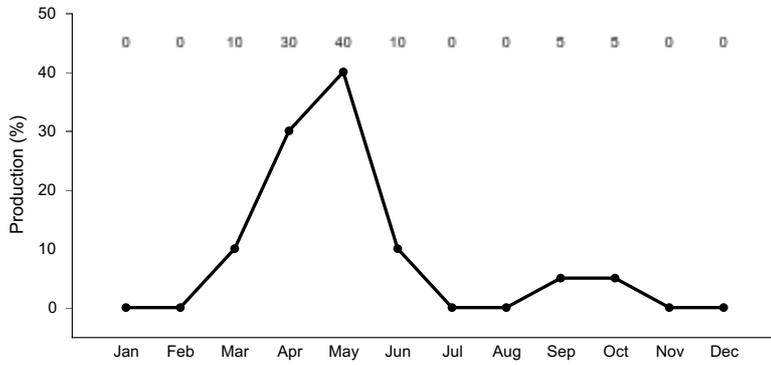


Figure 10. Plant community growth curve (percent production by month). ID0109, LOW SERAL, STATE 2.

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Grass and Grasslike			—	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	180–300	—
	rush	JUNCU	<i>Juncus</i>	60–100	—
	sedge	CAREX	<i>Carex</i>	60–100	—
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	60–100	—
	blue wildrye	ELGLG	<i>Elymus glaucus ssp. glaucus</i>	60–100	—
	Columbia needlegrass	ACNEN2	<i>Achnatherum nelsonii ssp. nelsonii</i>	60–100	—
	mountain brome	BRMA4	<i>Bromus marginatus</i>	60–100	—
	slender wheatgrass	ELTRT	<i>Elymus trachycaulus ssp. trachycaulus</i>	1–50	—
	Letterman's needlegrass	ACLE9	<i>Achnatherum lettermanii</i>	1–50	—
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	1–50	—
2	Nevada Bluegrass			—	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	60–100	—
Forb					
3	Forbs			—	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	60–100	—
	clover	TRIFO	<i>Trifolium</i>	60–100	—
	cinquefoil	POTEN	<i>Potentilla</i>	60–100	—
	common cowparsnip	HEMA80	<i>Heracleum maximum</i>	0–50	—
	geranium	GERAN	<i>Geranium</i>	0–50	—
	goldenrod	SOLID	<i>Solidago</i>	0–50	—
	tarragon	ARDR4	<i>Artemisia dracunculus</i>	1–50	—
	horehound	MAVU	<i>Marrubium vulgare</i>	1–50	—
	horsetail	EQUIS	<i>Equisetum</i>	0–50	—
	mint	MENTH	<i>Mentha</i>	1–50	—
	aster	ASTER	<i>Aster</i>	0–50	—
Shrub/Vine					

4	Shrubs			-	
	willow	SALIX	<i>Salix</i>	300–500	-
	Woods' rose	ROWO	<i>Rosa woodsii</i>	120–200	-
	redosier dogwood	COSE16	<i>Cornus sericea</i>	60–100	-
	chokecherry	PRVI	<i>Prunus virginiana</i>	60–100	-
	black hawthorn	CRDO2	<i>Crataegus douglasii</i>	60–100	-
	elderberry	SAMBU	<i>Sambucus</i>	1–50	-
	wax currant	RICE	<i>Ribes cereum</i>	1–50	-
	golden currant	RIAU	<i>Ribes aureum</i>	1–50	-
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	1–50	-
Tree					
5	Trees			-	
	black cottonwood	POBAT	<i>Populus balsamifera ssp. trichocarpa</i>	4200–7000	-
	alder	ALNUS	<i>Alnus</i>	60–100	-

Animal community

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

The riparian ecological site provides diverse habitat value for wetland and upland wildlife species. The available hydrology results in abundant trees, shrubs, forbs, grass-likes, and grasses attracting invertebrate and vertebrate animals to the ecological site. Important seasonal habitat is provided for over 80% of adjacent rangeland resident and migratory animals including western toad, western rattlesnake, shrews, bats, ground squirrels, beaver, mice, coyote, red fox, Swainson's hawk, northern harrier, Dusky flycatcher, and yellow warbler. Large herbivore use of this ecological site includes mule deer, white-tailed deer, and elk. Native reptile and amphibians are reliant on these riparian sites throughout the year. Loss of site hydrology significantly reduces habitat value of the riparian site and adjacent ecological sites. Streams are associated with this site and provide a native fishery. Area sensitive species include Woodhouse's toad, ring-necked snake, Coeur d'Alene salamander, mountain quail, steelhead trout, sand roller, and west-slope cutthroat. The site provides critical travel corridors for all animal species. Open water is seasonal being provided by seasonal runoff, ponding, flooding, seasonal high water table, natural springs, and adjacent streams.

State 1 Phase 1.1 –Black Cottonwood/ Salix Species Reference Plant Community (RPC): The RPC provides a diversity of herbaceous and woody plants used by native insect communities who assist in pollination. The insects are food for the many predator species utilizing the site. The reptile and amphibian community may include western rattlesnake, gopher snake, Woodhouse's toad, Coeur d'Alene salamander, western skink, ring-necked snake, rubber boa, terrestrial gartersnake, western toad, Columbia spotted frog, and northern leopard frog. A diverse amphibian population is a key indicator of good ecological health on this site. Loss of hydrology will limit or exclude amphibians from this ecological site. Fish species in adjacent streams can include rainbow trout, brook trout, west-slope cutthroat, steelhead trout, and sand roller. Trees and shrubs add vertical structure for nesting and roosting sites for resident and migratory avian species. Bird species can include willow flycatcher, common yellowthroat, black-capped chickadee, mountain quail, Dusky flycatcher, and yellow warbler, utilizing the plant community for breeding and nesting cover. The plant community provides year round forage for mule deer, white-tailed deer, and elk. A small mammal population including deer mouse, western jumping mouse, beaver, and muskrat may utilize available habitat on a seasonal basis.

State 1 Phase 1.2- Black Cottonwood (decadent) Plant Community: This community has developed due to a much reduced flooding frequency due to channel down cutting, upstream water diversions, or other upper watershed conditions. Insect diversity may reduce due to a decrease in herbaceous understory. The lowering of the water table would reduce habitat value for amphibians identified in State 1 Phase 1.1. The reptile community may be similar to the State 1 Phase 1.1 reptile community. Quality of fishery habitat is lowered due to poor streamside plant

condition, resulting in less instream food and cover. Fish species may be dominated by non-native brook trout and rainbow trout. The quality of cover habitat for birds provided by black cottonwood would decrease, thus favoring bird species reliant on shrubs versus trees. Forage and cover habitat for mule deer, white-tailed deer, and elk may increase with the increase of shrub cover. Small mammal populations and diversity would be similar to the State 1 Phase 1.1 small mammal community. An increase in shrub cover may increase habitat quality for beaver.

State 1 Phase 1.3- Black Cottonwood Plant Community: This community has developed with improper grazing management. Insect diversity will be similar to the State 1 Phase 1.1 insect community. The amphibian community will be similar to the State 1 Phase 1.1 amphibian community. Fish species in adjacent streams can include rainbow trout, brook trout, west-side cutthroat, and steelhead. Habitat may begin to favor non-native fish species due to potential loss of cover habitat and decline in water quality. Bird species can include willow flycatcher, common yellowthroat, black-capped chickadee, mountain quail, Dusky flycatcher, and yellow warbler, utilizing the plant community for breeding and nesting cover. The plant community provides year round forage for mule deer, white-tailed deer, and elk. Cover and food habitat for large herbivores would be similar to that in State 1, Phase 1.1. A small mammal population including deer mouse, western jumping mouse, beaver, and muskrat may utilize available habitat on a seasonal basis.

State 1 Phase 1.4- Black Cottonwood saplings/ Willow Saplings Plant Community: This plant community has developed with a recent wildfire. The animal community would be represented by species similar to those in the State 1 Phase 1.1 community but at reduced populations. Under proper management you could expect the plant community to continue to re-establish to the State 1, Phase 1.1 plant community. In the long-term, the animal community can be expected to return to the diversity and populations exhibited in State 1, Phase 1.1 animal community. In the short-term available grazing habitat for large herbivores would be reduced. The available browse for large herbivores would increase. An increase in woodpeckers, sapsuckers, and flickers can be expected with the increase in the number of snags.

State 1 Phase 1.5- Black Cottonwood (decadent)/ Plant Community: This plant community has developed with a significant reduction in flooding frequency and no fire. The animal community can be expected to be similar to the State 1, Phase 1.2 animal community.

State 1 Phase 1.6 – Willow Species/ Grasses/ Forbs Plant Community: This community is the result of uncontrolled beaver populations. The increase in flooded conditions has reduced the tree overstory. Animal species dependent on tall trees in their life cycle (woodpeckers, sapsuckers and flickers) would not be favored. The increase in shrubs and insects would increase habitat quality for the yellow warbler, American redstart, and a variety of flycatchers. The insect, amphibian, and fish community may be favored with the increase in flooded conditions. Large herbivore use would be similar to that in State 1, Phase 1.1. You could expect beaver activity to create ponded sites suitable for native and non-native fish.

State 2 –Dead Black Cottonwood Plant Community: This plant community has developed through continued improper grazing management, lowered water table, and reduced frequency of flooding. Loss of historic hydrology has reduced the habitat value for many animals present in State 1. The increase in forbs would support a population of pollinators but may not provide pollinator habitat in all seasons. The loss of historic hydrology will limit or exclude use of the site by amphibians and many reptiles. Quality of fishery habitat is lowered due to poor streamside plant condition, resulting in poor water quality and reduced instream food and cover. Fish species may now be dominated by non-native brook trout and hatchery rainbow trout. With continued improper grazing management the loss of vertical and horizontal structure would reduce diversity and populations of birds identified in State 1. With the loss of trees and shrubs the site would be more suitable for killdeers, western meadowlark, and horned larks. Birds of prey (northern harrier and Cooper's hawk) may range throughout this area looking for prey species. With improper grazing management, forage for large herbivores would be available for a shorter duration in the summer and fall. Small mammal diversity would favor grass seed eating species (deer mouse). Predation on small mammals would increase due to poor quality cover habitat. The loss of trees and shrubs would fragment the historic travel corridor for small and large mammals, amphibians, reptiles, and birds.

Grazing Interpretations.

This site is suited for livestock grazing in late spring, summer, and fall. This site is usually heavily used by livestock,

particularly in the summer. Prescribed grazing must be planned to avoid degradation of the site. Special management should be used to protect the adjacent water courses and the associated values. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use, and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrological functions

The soils in this site are in hydrologic group B and C. They have moderately low to moderately high runoff potential.

Recreational uses

This site has high value for recreation such as camping, picnicking, hunting, and possibly fishing. This site provides visual diversity to the range ecosystem.

Wood products

This site has limited potential for posts, poles, firewood and lumber.

Other products

None.

Other information

Field Offices

Grangeville, ID
Craigmont, ID
Orofino, ID
Lewiston, ID
Moscow, ID
St. Maries, ID
Coeur d'Alene, ID

Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include:

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC
Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC
Jim Cornwell, Range Management Specialist, IASCD
Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho
Bruce Knapp, Resource Soil Scientist, NRCS
Lee Brooks, Range Management Specialist, IASCD

Other references

USDA Forest Service, Rocky Mountain Research Station. 2004. Restoring Western Ranges and Wildlands. General Technical Report RMRS-GTR-136-vols. 1-3.
USDA, NRCS.2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
USDA, Forest Service, Fire Effects Information Database. 2004. www.fs.fed.us/database.
USDI Bureau of Land Management, US Geological Survey; USDA Natural Resources Conservation Service, Agricultural Research Service; Interpreting Indicators of Range Health. Technical Reference 1734-6; Version 4-

2005.

Approval

Kendra Moseley, 9/23/2020

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Date	04/20/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** rills do not occur on this site.

- 2. Presence of water flow patterns:** water flows over and through the plant community due to frequent flooding. Flows can scour the soil surface or deposit sediments. Rarely are flows detrimental to the tree components of the plant community. These plants have adapted or evolved with this occurrence. Understory species can be damaged, removed or buried.

- 3. Number and height of erosional pedestals or terracettes:** neither occurs on this site as classically defined. Scouring can expose some roots. Tree species have evolved with this occurrence and will sprout from the roots. Deposition areas can give a hummocky surface.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** data is not available. On sites in mid-seral status bare ground may range from 2-10 percent. Immediately following a significant flood event, bare ground may be as high as 40-50 percent.

- 5. Number of gullies and erosion associated with gullies:** does not exist.

- 6. Extent of wind scoured, blowouts and/or depositional areas:** from wind does not occur. Scouring and deposition areas do occur from flooding.

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7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move 6 feet or more or off the site due to seasonal flooding. Coarse litter can move within the site or off the site due to flooding. Some debris may hang up or be deposited in piles within the site.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** values should range from 4 to 6 but needs to be tested.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The thickness of the A or A1 horizon ranges from 2 to 9 inches and is very dark grayish brown. Structure ranges from single grained loose to very weak very fine granular. Soil organic matter (SOM) ranges from .5 to 1 percent. The soils may not show distinct horizons due to their fluvial nature.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** a mixed age stand of trees and shrubs is needed to slow run-off and increase infiltration. The plant community is more dependent on moisture from the fluctuating water table than on infiltration. The water table controls rooting depth.
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** not present.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant: trees are >>
- Sub-dominant: shrubs = perennial grasses>
- Other: forbs
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** normal mortality of grass, grass-like and forbs occur with scouring and deposition from flooding. Some mortality can occur in the shrub and herbaceous layers as tree canopy closes. Decadence and mortality of black cottonwood can occur with age, disease, and beaver activity. Disease can increase as a result of tree damage from flooding. Young and middle-aged trees and most shrubs re-sprout below or from the damaged area.
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14. **Average percent litter cover (%) and depth (in):** additional litter cover data is needed but is expected to be ___percent to a depth of 0.5-1.5 inches at the end of the growing season, but may be removed following flooding.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 8000 pounds per acre (8960 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses and sedges produce 10 percent of the total production, forbs 5 percent, shrubs 10 percent and trees 75 percent.
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** includes whitetop, leafy spurge, dock, Canadian thistle, reed canarygrass, foxtail barley, perennial pepperweed, and teasel. Other invasive species may include meadow foxtail, reedtop, and Kentucky bluegrass.
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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in most years. Many of the plants reproduce vegetatively. Black cottonwoods require flooding to scour the surface or provide sediment deposition to germinate seeds.
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