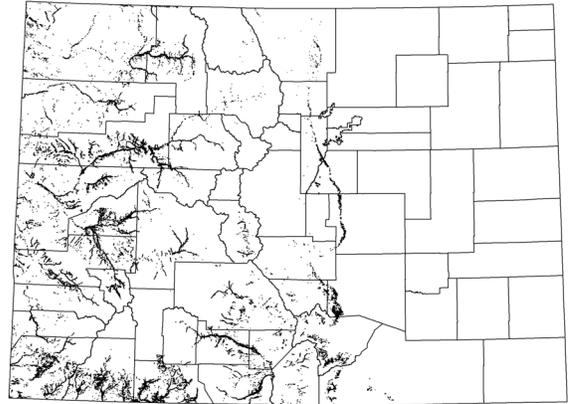


# ROCKY MOUNTAIN LOWER MONTANE RIPARIAN WOODLAND AND SHRUBLAND



K. Carsey



extent exaggerated for display

- ACER NEGUNDO SEASONALLY FLOODED FOREST ALLIANCE  
*Acer negundo* / *Equisetum arvense* Forest
- ACER NEGUNDO TEMPORARILY FLOODED FOREST ALLIANCE  
*Acer negundo* - *Populus angustifolia* / *Cornus sericea* Forest  
*Acer negundo* / *Cornus sericea* Forest  
*Acer negundo* / *Prunus virginiana* Forest
- ACER NEGUNDO TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Acer negundo* / *Betula occidentalis* Woodland  
*Acer negundo* / *Disturbed Understory* Woodland
- FORESTIERA PUBESCENS TEMPORARILY FLOODED SHRUBLAND ALLIANCE  
*Forestiera pubescens* Shrubland
- FRAXINUS ANOMALA TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Fraxinus anomala* Woodland
- JUNIPERUS SCOPULORUM TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Juniperus scopulorum* / *Cornus sericea* Woodland
- JUNIPERUS SCOPULORUM WOODLAND ALLIANCE  
*Juniperus scopulorum* Woodland
- PINUS PONDEROSA TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Pinus ponderosa* / *Alnus incana* Woodland
- POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED FOREST ALLIANCE  
*Populus angustifolia* - *Populus deltoides* - *Salix amygdaloides* Forest  
*Populus angustifolia* / *Lonicera involucrata* Forest  
*Populus angustifolia* Sand Dune Forest
- POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Populus angustifolia* - *Juniperus scopulorum* Woodland  
*Populus angustifolia* - *Picea pungens* / *Alnus incana* Woodland  
*Populus angustifolia* - *Pinus ponderosa* Woodland  
*Populus angustifolia* - *Pseudotsuga menziesii* Woodland  
*Populus angustifolia* / *Alnus incana* Woodland  
*Populus angustifolia* / *Betula occidentalis* Woodland  
*Populus angustifolia* / *Cornus sericea* Woodland  
*Populus angustifolia* / *Crataegus rivularis* Woodland  
*Populus angustifolia* / *Prunus virginiana* Woodland  
*Populus angustifolia* / *Rhus trilobata* Woodland  
*Populus angustifolia* / *Salix (monticola, drummondiana, lucida)* Woodland  
*Populus angustifolia* / *Salix drummondiana* - *Acer glabrum* Woodland  
*Populus angustifolia* / *Salix exigua* Woodland  
*Populus angustifolia* / *Salix irrorata* Woodland  
*Populus angustifolia* / *Salix ligulifolia* - *Shepherdia argentea* Woodland  
*Populus angustifolia* / *Symphoricarpos albus* Woodland
- POPULUS DELTOIDES TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Populus deltoides* - (*Salix amygdaloides*) / *Salix (exigua, interior)* Woodland  
*Populus deltoides* / *Symphoricarpos occidentalis* Woodland  
*Populus deltoides* ssp. *wislizeni* / *Rhus trilobata* Woodland
- PSEUDOTSUGA MENZIESII TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Pseudotsuga menziesii* / *Betula occidentalis* Woodland  
*Pseudotsuga menziesii* / *Cornus sericea* Woodland
- RHUS TRILOBATA INTERMITTENTLY FLOODED SHRUBLAND ALLIANCE  
*Rhus trilobata* Intermittently Flooded Shrubland
- SALIX (EXIGUA, INTERIOR) TEMPORARILY FLOODED SHRUBLAND ALLIANCE  
*Salix exigua* - *Salix ligulifolia* Shrubland  
*Salix exigua* / Barren Shrubland  
*Salix exigua* / Mesic Graminoids Shrubland  
*Salix exigua* Temporarily Flooded Shrubland
- SALIX AMYGDALOIDES TEMPORARILY FLOODED WOODLAND ALLIANCE  
*Salix amygdaloides* Woodland
- SALIX IRRORATA TEMPORARILY FLOODED SHRUBLAND ALLIANCE  
*Salix irrorata* Shrubland
- SHEPHERDIA ARGENTEA TEMPORARILY FLOODED SHRUBLAND ALLIANCE  
*Shepherdia argentea* Shrubland

**Overview:** The Rocky Mountain Lower Montane Riparian Woodland and Shrubland system is found throughout the Rocky Mountain region within a broad elevation range from approximately 2950 to 9100 ft (900 to 2800 m). In Colorado this system is primarily found in the western half of the state at elevations above 5100 ft (1550 m), where it occurs within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. This system often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component.

**Characteristic species:** Dominant trees may include *Acer negundo*, *Populus angustifolia*, *Populus x acuminata*, *Populus balsamifera*, *Populus deltoides*, *Populus fremontii*, *Pseudotsuga menziesii*, *Picea pungens*, *Salix amygdaloides*, or *Juniperus scopulorum*. Dominant shrubs include *Acer glabrum*, *Alnus incana*, *Betula occidentalis*, *Cornus sericea*, *Crataegus rivularis*, *Forestiera pubescens*, *Prunus virginiana*, *Rhus trilobata*, *Salix monticola*, *Salix drummondiana*, *Salix exigua*, *Salix irrorata*, *Salix lucida*, *Shepherdia argentea*, or *Symphoricarpos* spp. The exotic trees *Elaeagnus angustifolia*, *Tamarix* spp., and *Salix fragilis* are common in some stands. The upland vegetation surrounding this riparian system ranges from grasslands to forests.

**Environment:** This ecological system is found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. It can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. It is also typically found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. It may also occur in upland areas of mesic swales and hillslopes below seeps and springs. The climate in the range of this system is continental with typically cold winters and hot summers. Surface water is generally high for variable periods. Soils are typically alluvial deposits of sand, clays, silts and cobbles that are highly stratified with depth due to flood scour and deposition. Highly stratified profiles consist of alternating layers of clay loam and organic material with coarser sand or thin layers of sandy loam over very coarse alluvium. Soils are fine-textured with organic material over coarser alluvium. Some soils are more developed due to a slightly more stable environment and greater input of organic matter.

**Dynamics:** This system is dependent on a natural hydrologic regime, especially annual to episodic flooding. These woodlands and shrublands grow within a continually changing alluvial environment due to the ebb and flow of the river, and riparian vegetation is constantly being “re-set” by flooding disturbance.

**Variation:** This ecological system contains early-, mid- and late-seral riparian plant associations. It also contains non-obligate riparian species. Cottonwood communities are early-, mid- or late-seral, depending on the age class of the trees and the associated species of the occurrence (Kittel et al. 1999). Mature cottonwood occurrences do not regenerate in place, but by "moving" up and down a river reach. Over time a healthy riparian area supports all stages of cottonwood communities (Kittel et al. 1999).



G. Kittel

Kittel, G. M., E. VanWie, M. Dam, R. Rondeau, S. Kettler, A. McMullen, and J. Sanderson. 1999. A Classification of Riparian Wetland Plant Associations of Colorado: User Guide to the Classification Project, Colorado Natural Heritage Program, Colorado State University, Ft. Collins, CO.

Rank:	A	B	C	D
<b>① CONDITION</b>				
<b>Natural hydrologic regime</b>	Intact, including an unaltered floodplain. No or little evidence of alteration due to drainage, flood control, irrigation canals, livestock grazing, digging, burning, vehicle use, etc.	Intact or slightly altered by local drainage, flood control, irrigation canals, livestock grazing, digging, vehicle use, roads, etc. Alteration is easily restorable by ceasing such activities.	Natural hydrologic regime altered by upstream dams, local drainage, diking, filling, digging, or dredging. Alteration is extensive but potentially restorable over several decades.	Not restorable. System remains fundamentally compromised despite restoration of some processes.
<b>Community Structure</b>	Community is composed primarily of native species and has a diverse physiognomic structure.	Although species composition is primarily of native species, the physiognomic structure is less diverse than in "A" ranked occurrences.	Noticably altered by disturbance.	
<b>Non-native species</b> (e.g., tamarisk, Russian olive, brome, Canada thistle, leafy spurge)	If non-native species are present they are less than 3% canopy cover; and have little potential for expansion.	There are few exotic species, and low potential for their expansion if restoration occurs.	May be widespread but potentially manageable with restoration of most natural processes.	May be dominant over significant portions of area, with little potential for control.
<b>Disturbance</b> Excessive grazing or other human caused actions e.g. channeling, road construction, vehicle use, etc.	Stream banks are not overly steepened and have not been stripped of vegetation.	Stream banks may show some local deleterious effects.	Stream banks may be severely altered. Disturbance is extensive and significant enough to have notable impact on species composition and soil compaction, causing excessive erosion.	
<b>② LANDSCAPE CONTEXT</b>				
<b>Area hydrology</b>	No evidence of human-caused alteration of hydrology, especially upstream of occurrence and within the watershed. Groundwater pumping is not pervasive in the area, or has not had a detectable impact on hydrologic patterns. Water quality is excellent and supports expected aquatic invertebrates.	Little evidence of human-caused alteration of hydrology, especially upstream of occurrence and within the watershed. Groundwater pumping may be contributing to changes in water availability.	Local or moderate human-caused alteration of hydrology may be present, for example small dams, irrigation ditches, and gravel mines. Groundwater pumping has produced noticeable changes from historic hydrologic patterns.	Major human-caused alteration of hydrology. Large dams and numerous diversions are within watershed. Gravel mining may be extensive.
<b>Surrounding land</b> (Uplands surrounding occurrence and within the watershed)	Largely unaltered by urban or agricultural uses (>90% natural), and distance to nearest cropped, mowed, or developed land is greater than 1 mile.	Largely unaltered by urban or agricultural uses (60 to 90% natural), but retaining much connectivity, or uplands are not intensively cropped with center-pivot irrigation, dryland farming, or numerous roads.	Fragmented by urban or agricultural alteration (20 to 60% natural).	Mostly converted to agricultural or urban uses. Riparian occurrence may be reduced to narrow strip with much edge effect.
<b>Connectivity &amp; natural processes</b>	Connectivity to habitats allows natural processes and species migration to occur. No unnatural barriers present.		Limited connectivity. Some barriers are present, and natural processes few.	Connectivity and natural processes are nonexistent.
<b>③ SIZE</b>				
<b>Linear miles</b>	>5	3-5	1-3	< 1