

# Riparian Tree and Shrub Communities

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## Description: Riparian thickets and seepages<sup>1</sup>

Riparian plant communities and seepages comprise < 1-5% of most landscapes yet are disproportionately important because of the diversity, structure and habitat they provide, especially in the drier ecosystems. It is important to understand the zone, soil depth and texture, and moisture regime of the site when determining riparian plant community health and seral stage.

There are two common errors when evaluating and describing riparian thickets. The first relates to the importance of rose and snowberry especially in riverine riparian plant communities in the drier ecosystems. Many range staff have been trained to think of rose and snowberry as increasers and undesirable species on uplands. This is not the case in these riparian types, and these species are often the first to drop out of riparian thickets that have been over-browsed and compacted by cattle hooves.

The second error occurs when deciding on the relevance of willow in riverine riparian areas. Willow will withstand flooding for part of the growing season but will not survive longterm soil saturation. Its roots require good aeration and therefore it is found on coarse textured soils and over rocks and cobbles; it will not grow in fine textured anaerobic soils; willow species tolerate cold soil conditions. Willow is absent from most of the small, steeper gradient streams in the drier ecosystems where its role is filled by red-osier dogwood, gooseberry, rose and snowberry which are all better adapted to lower riparian soil moisture and warmer winter soil conditions.

Another common error relates to the importance of replacement woody debris along streams. Early seral-species like alder and lodgepole pine do not provide quality, long-lasting coarse woody debris when compared to cedar, white spruce or western larch. Woody debris dependent streams need the later seral conifers for longterm stability, and if timber harvesting removes all large conifers, the system will take decades to restabilize, as the conifer regeneration will need to grow and mature to the point where it falls down and is incorporated into the riparian zone and stream channel.

Some large river systems dominated by cottonwood need periodic flooding and ice scouring to prepare a seedbed for new cottonwood seedlings. Dam controlled and channelized systems often lack this naturally disturbance pattern resulting in decadent and dying riparian vegetation.

Following are the more common riverine plant communities in BC rangelands. The dominant and co-dominant trees are listed first, with the understory shrub layer in brackets.

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<sup>1</sup> Grouped as swamps and flood associations by Mackenzie, W.H. and J.R. Moran. 2004. Wetlands of British Columbia: a guide to identification. BC Ministry of Forests, Land Management Handbook 52.

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## Drier Ecosystems:

| Table 1. Riparian Tree and Shrub Communities in Drier Ecosystems |                           |              |            |
|------------------------------------------------------------------|---------------------------|--------------|------------|
| Overstorey species (understorey shrubs and grasses)              | BEC Zones                 | Site Assoc*  | Image No.  |
| Black Hawthorn (rose)                                            | BG, PP                    | FI           | 3, 4       |
| Cottonwood (snowberry—rose)                                      | BG, PP and IDF            | Fm01         | 5, 6       |
| Cottonwood – spruce (red-osier dogwood)                          | BG, PP and IDF            | Fm02         | 7          |
| Paper birch (red-osier dogwood)                                  | PP, IDF                   | FI           | 8, 9       |
| Snowberry — Saskatoon                                            | PP                        | Fm           | 10         |
| Water birch — Douglas maple                                      | PP                        | FI07         | 11         |
| Water birch (rose—snowberry) and (squaw current—hawthorn)        | BG, PP and IDF (warm/hot) | FI07         | 12, 13, 14 |
| Trembling aspen— red-osier dogwood (snowberry-rose-horsetails)   | BG, IDFdk                 | FI           | 15         |
| White spruce — Aspen (red-osier dogwood — snowberry — rose )     | IDF dk, dm                | Ws01<br>FI05 | 16, 17     |
| White spruce                                                     | IDF                       | Ws07         | 18         |
| Bebb’s willow (bluejoint)                                        | BG, PP, IDF               | Ws03         | 19         |
| Drummond Willow (bluejoint)                                      | IDF                       | FI05         | 20, 21     |
| Sandbar willow                                                   | BG, PP                    | FI06         | -          |
| Pacific willow (red-osier dogwood)                               | BG, PP, IDF               | FI03         | -          |

\*In the table above F delineates a flood association and W delineates a swamp.

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## Moister Ecosystems:

| Table 2. Riparian Tree and Shrub Communities in Moister Ecosystems |                              |              |           |
|--------------------------------------------------------------------|------------------------------|--------------|-----------|
| Overstorey species (understorey shrubs)                            | BEC Zones                    | Site Assoc * | Image No. |
| Trembling aspen**                                                  | BWBS, SWB, SBS               | FI           | 23        |
| Alder (red-osier dogwood) **                                       | ICH, SBPS and SBS            | FI02         | 24        |
| Alder (spirea)**                                                   | IDF, MS                      | Ws02         | 25        |
| Cottonwood – spruce (red-osier dogwood)                            | MS, ICH, BWBS/ SWB, SBPS/SBS | Fm02         | 26, 27    |
| Cottonwood — subalpine fir (devil’s club)                          | ICH and SBPS and SBS         | Fm03         | -         |
| Subalpine fir (valerian)                                           | ESSF                         | Ws08         | 28, 29    |
| Western red cedar — alder (red osier – devil’s club)               | IDF mw1                      | Ws01         | 30, 31    |
| Western red cedar — spruce                                         | ICH                          | Ws10         | 32        |
| White spruce (black twinberry)                                     | ESSF, MS, BWBS and SWB       | Ws07         | 33, 34    |
| Willow, Drummond (bluejoint)                                       | ICH, SBPS and SBS            | FI05         | 36        |
| Willow, sandbar                                                    | BWBS/SWB; SBPS/SBS           | FI06         | -         |
|                                                                    |                              |              |           |

\*In the table above F delineates a flood association and W delineates a swamp.  
\*\* These aspen and alder communities are early-seral and might remain as such if frequent disturbance is the normal regime.

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The following are representative photos of some communities listed in Table 1 and 2.

## Early-seral streamside community



**Image 1. An early-seral community lacking the climax conifer component that is the source of replacement large woody debris.**



**Image 2. An early-seral alder thicket. These are common in seepage areas that are riparian in nature, having some surface water flow. By definition they would be swamps (wooded wetlands).**

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## Drier Ecosystems



**Image 3. A black hawthorn (rose) community in the draw.**



**Image 4. A degraded black hawthorn (rose) community.**

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**Images 5 and 6. A cottonwood (snowberry-rose) community.**



**Image 7. A cottonwood — spruce (red-osier dogwood) community.**



**Image 8. A paper birch (red-osier dogwood—Douglas maple) community.**

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**Image 9. A paper birch (red-osier dogwood – Douglas Maple) community.**



**Image 10. A snowberry – saskatoon community.**



**Image 11. A water birch – Douglas Maple community.**

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**Image 12. A degraded water birch (rose-snowberry) community.**



**Images 13 and 14. A water birch (squaw currant—hawthorn) community.**



**Image 15. A trembling aspen - red-osier dogwood (snowberry, rose) community.**

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**Image 16. A mature white-spruce — aspen (red-osier dogwood—snowberry—rose) community.**



**Image 17. A young stand of white-spruce — aspen (red-osier dogwood—snowberry—rose).**

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**Image 18. A mature white spruce (rose and snowberry understory) community.**



**Image 19. Bebb's Willow growing along Elkin Creek in the Chilcotin.**

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**Images 20 and 21. Mixed willow (bluejoint) and Bebb's willow (bluejoint) communities.**



**Image 22. A damaged cottonwood community with no recruitment.**

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## Moister Ecosystems



**Image 23. An early-seral aspen community.**



**Image 24. An alder (red-osier dogwood) community.**



**Image 25. An alder (sedge) community.**

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**Image 26. A cottonwood – spruce (red-osier dogwood) community.**



**Image 27. A black cottonwood—spruce community.**



**Images 28 and 29. A subalpine fir (valerian, nooding wood-reed) community.**

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**Images 30 and 31. A western red cedar — alder (devil's club) community. This is an earlier seral community than western red cedar — spruce.**



**Image 32. A western red cedar — spruce (devil's club, red-osier dogwood) community.**



**Image 33. A white spruce community.**

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**Image 34. A white spruce (black twinberry) community with minor alder in disturbed openings.**



**Image 35. A red-osier dogwood thicket under forest canopy.**

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**Image 36. A mixed willow (bluejoint) community**