

## Tolerance comparisons

| Life form | Tree code | Tree species                  | low light | frost | heat | water deficit | water surplus | nitrogen deficiency |
|-----------|-----------|-------------------------------|-----------|-------|------|---------------|---------------|---------------------|
| C         | Ba        | <i>amabilis fir</i>           | H         | M     | L    | L             | H             | H                   |
| C         | Bg        | <i>grand fir</i>              | L-M       | L-M   | M    | M             | H             | M                   |
| C         | Bl        | <i>subalpine fir</i>          | H         | H     | M    | M             | H             | H                   |
| C         | Cw        | <i>western redcedar</i>       | H         | L-M   | M    | M             | H             | H                   |
| C         | Fd        | <i>Douglas-fir</i>            | L-H       | L-M   | M-H  | M             | L             | M                   |
| C         | Hm        | <i>mountain hemlock</i>       | M         | M     | L    | L             | M             | H                   |
| C         | Hw        | <i>western hemlock</i>        | H         | L     | L    | L             | M             | H                   |
| C         | Jr        | <i>Rocky Mountain juniper</i> | L         | H     | H    | H             | L             | H                   |
| C         | La        | <i>alpine larch</i>           | L         | H     | L    | M             | H             | M                   |
| C         | Lt        | <i>tamarack</i>               | L         | H     | M    | M             | H             | M                   |
| C         | Lw        | <i>western larch</i>          | L         | M     | M    | M             | L             | M                   |
| C         | Pa        | <i>whitebark pine</i>         | L         | H     | M    | H             | L             | M                   |
| C         | Pj        | <i>jack pine</i>              | L         | H     | H    | H             | L             | H                   |
| C         | Pl        | <i>lodgepole pine</i>         | L         | H     | M    | H             | H             | H                   |
| C         | Pw        | <i>western white pine</i>     | M         | M-H   | M    | L             | H             | L                   |
| C         | Py        | <i>ponderosa pine</i>         | L         | M     | H    | H             | H             | M                   |
| C         | Sb        | <i>black spruce</i>           | H         | H     | M    | M             | H             | H                   |
| C         | Se        | <i>Engelmann spruce</i>       | M         | H     | M    | M             | H             | M                   |
| C         | Ss        | <i>Sitka spruce</i>           | M         | L     | L    | L             | H             | L                   |
| C         | Sw        | <i>white spruce</i>           | M         | H     | M    | M             | H             | M                   |
| C         | Sx        | <i>interior spruce</i>        | M         | H     | M    | M             | H             | M                   |
| C         | Tw        | <i>western yew</i>            | H         | M     | M    | M             | H             | H                   |
| C         | Yc        | <i>yellow-cedar</i>           | H         | L     | L    | M             | H             | H                   |
| B         | Acb       | <i>balsam poplar</i>          | L         | H     | M    | L             | H             | L                   |
| B         | Act       | <i>black cottonwood</i>       | L         | M     | M    | L             | H             | L                   |
| B         | At        | <i>trembling aspen</i>        | L         | H     | M    | L             | H             | M                   |
| B         | Dr        | <i>red alder</i>              | L         | L     | L    | L             | H             | H                   |
| B         | Ep        | <i>common paper birch</i>     | M         | H     | M    | M             | H             | M                   |
| B         | Gp        | <i>Pacific dogwood</i>        | M         | L     | M    | M             | M             | M                   |
| B         | Kc        | <i>cascara sagrada</i>        | M         | L     | L    | L             | H             | L                   |
| B         | Mb        | <i>bigleaf maple</i>          | L         | L     | M    | L             | H             | M                   |
| B         | Qg        | <i>Garry oak</i>              | M         | L     | H    | H             | H             | M                   |
| B         | Ra        | <i>arbutus</i>                | L         | L     | H    | H             | L             | H                   |
| B         | Vb        | <i>bitter cherry</i>          | M         | M     | M    | L             | H             | H                   |

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## Resistance and potential risk comparisons

| Life |      |                               | Resistance Class |      | Risk Class |        |       |       |
|------|------|-------------------------------|------------------|------|------------|--------|-------|-------|
| Form | code | tree species                  | Snow             | Wind | Fire       | Insect | Fungi | Other |
| C    | Ba   | <i>amabilis fir</i>           | H                | M    | L          | M      | L     | na    |
| C    | Bg   | <i>grand fir</i>              | M                | M    | H          | H      | H     | na    |
| C    | Bl   | <i>subalpine fir</i>          | H                | L    | H          | H      | H     | na    |
| C    | Cw   | <i>western redcedar</i>       | L-M              | M    | L-H        | L      | H     | H     |
| C    | Fd   | <i>Douglas-fir</i>            | L-M              | H    | M-H        | H      | H     | L     |
| C    | Hm   | <i>mountain hemlock</i>       | M                | L    | L          | L      | L     | M     |
| C    | Hw   | <i>western hemlock</i>        | L-M              | L    | L-H        | L-H    | M     | H     |
| C    | Jr   | <i>Rocky Mountain juniper</i> | L                | H    | H          | L      | M     | na    |
| C    | La   | <i>alpine larch</i>           | H                | H    | L          | L      | L     | na    |
| C    | Lt   | <i>tamarack</i>               | H                | L-H  | M          | M      | L     | na    |
| C    | Lw   | <i>western larch</i>          | H                | H    | H          | M      | L     | M     |
| C    | Pa   | <i>whitebark pine</i>         | H                | H    | L          | H      | M     | L     |
| C    | Pj   | <i>jack pine</i>              | L                | H    | H          | H      | M     | na    |
| C    | Pl   | <i>lodgepole pine</i>         | L                | M    | H          | H      | H     | H     |
| C    | Pw   | <i>western white pine</i>     | H                | M    | M-H        | M      | H     | na    |
| C    | Py   | <i>ponderosa pine</i>         | M                | H    | M          | M      | M     | M     |
| C    | Sb   | <i>black spruce</i>           | H                | L    | H          | M      | L     | na    |
| C    | Se   | <i>Engelmann spruce</i>       | H                | L    | H          | M      | M     | na    |
| C    | Ss   | <i>Sitka spruce</i>           | L                | L    | L          | H      | L     | na    |
| C    | Sw   | <i>white spruce</i>           | M                | L    | H          | M-H    | M     | na    |
| C    | Sx   | <i>interior spruce</i>        | M                | L    | H          | M-H    | M     | na    |
| C    | Tw   | <i>western yew</i>            | na               | na   | L          | L      | L     | na    |
| C    | Yc   | <i>yellow-cedar</i>           | M                | M    | L          | L      | L     | L     |
| B    | Acb  | <i>balsam poplar</i>          | M                | H    | L          | L      | L     | L     |
| B    | Act  | <i>black cottonwood</i>       | M                | H    | L          | L      | L     | L     |
| B    | At   | <i>trembling aspen</i>        | M                | M    | M          | L      | M-H   | L     |
| B    | Dr   | <i>red alder</i>              | L                | M    | L          | L      | L     | na    |
| B    | Ep   | <i>common paper birch</i>     | L                | M    | M          | L      | L     | na    |
| B    | Gp   | <i>Pacific dogwood</i>        | ?                | ?    | ?          | ?      | ?     | ?     |
| B    | Kc   | <i>cascara sagrada</i>        | ?                | ?    | ?          | ?      | ?     | ?     |
| B    | Mb   | <i>bingleaf maple</i>         | L                | M    | L          | L      | L     | L     |
| B    | Qg   | <i>Garry oak</i>              | L                | M    | L          | L      | L     | na    |
| B    | Ra   | <i>arbutus</i>                | M                | M    | H          | L      | M     | na    |
| B    | Vb   | <i>bitter cherry</i>          | ?                | ?    | ?          | ?      | ?     | ?     |

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# Comparison of silvical characteristics; regeneration stage

| Life form | Tree code | tree species                  | reproduction capacity | seed dissemination capacity | potential for regeneration | potential for regeneration in the open | potential for initial growth rate (over 5 years) |
|-----------|-----------|-------------------------------|-----------------------|-----------------------------|----------------------------|----------------------------------------|--------------------------------------------------|
| C         | Ba        | <i>amabilis fir</i>           | M                     | L                           | H                          | L                                      | L                                                |
| C         | Bg        | <i>grand fir</i>              | M                     | L                           | M                          | L                                      | M                                                |
| C         | Bl        | <i>subalpine fir</i>          | M                     | L                           | H                          | L                                      | L                                                |
| C         | Cw        | <i>western redcedar</i>       | M                     | H                           | H                          | H                                      | M                                                |
| C         | Fd        | <i>Douglas-fir</i>            | H                     | M                           | M                          | H                                      | H                                                |
| C         | Hm        | <i>mountain hemlock</i>       | M                     | M                           | L                          | H                                      | L                                                |
| C         | Hw        | <i>western hemlock</i>        | H                     | L                           | H                          | H                                      | L                                                |
| C         | Jr        | <i>Rocky Mountain juniper</i> | H                     | H                           | L                          | H                                      | L                                                |
| C         | La        | <i>alpine larch</i>           | M                     | H                           | L                          | M                                      | L                                                |
| C         | Lt        | <i>tamarack</i>               | H                     | H                           | L-H                        | H                                      | H                                                |
| C         | Lw        | <i>western larch</i>          | H                     | H                           | H                          | H                                      | M                                                |
| C         | Pa        | <i>whitebark pine</i>         | L                     | H                           | L                          | H                                      | L                                                |
| C         | Pj        | <i>jack pine</i>              | H                     | L                           | L                          | H                                      | H                                                |
| C         | Pl        | <i>lodgepole pine</i>         | H                     | L                           | L                          | H                                      | H                                                |
| C         | Pw        | <i>western white pine</i>     | H                     | M                           | L                          | H                                      | M                                                |
| C         | Py        | <i>ponderosa pine</i>         | H                     | L                           | L                          | H                                      | H                                                |
| C         | Sb        | <i>black spruce</i>           | M                     | L                           | L                          | H                                      | H                                                |
| C         | Se        | <i>Engelmann spruce</i>       | H                     | H                           | L                          | H                                      | L                                                |
| C         | Ss        | <i>Sitka spruce</i>           | H                     | M                           | L                          | H                                      | M                                                |
| C         | Sw        | <i>white spruce</i>           | L                     | ?                           | L                          | H                                      | L                                                |
| C         | Sx        | <i>interior spruce</i>        | L                     | ?                           | L                          | H                                      | L                                                |
| C         | Tw        | <i>western yew</i>            | L                     | M                           | M                          | H                                      | L-M                                              |
| C         | Yc        | <i>yellow-cedar</i>           | H                     | H                           | L                          | H                                      | M                                                |
| B         | Acb       | <i>balsam poplar</i>          | H                     | H                           | L                          | H                                      | H                                                |
| B         | Act       | <i>black cottonwood</i>       | H                     | H                           | L                          | H                                      | H                                                |
| B         | At        | <i>trembling aspen</i>        | H                     | H                           | L                          | H                                      | H                                                |
| B         | Dr        | <i>red alder</i>              | H                     | H                           | L                          | H                                      | H                                                |
| B         | Ep        | <i>common paper birch</i>     | H                     | H                           | L                          | H                                      | M                                                |
| B         | Gp        | <i>Pacific dogwood</i>        | H                     | H                           | L                          | H                                      | H                                                |
| B         | Kc        | <i>cascara sagrada</i>        | H                     | L                           | L                          | H                                      | H                                                |
| B         | Mb        | <i>bigleaf maple</i>          | M                     | L                           | L                          | H                                      | L                                                |
| B         | Qg        | <i>Garry oak</i>              | H                     | H                           | L                          | H                                      | M                                                |
| B         | Ra        | <i>arbutus</i>                | H                     | H                           | L                          | H                                      | H                                                |
| B         | Vb        | <i>bitter cherry</i>          | L                     | M                           | L                          | H                                      | M                                                |

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# Comparison of silvical characteristics; maturing stage

| Life form | Tree code | Tree species                  | response of advance regeneration to release | self-pruning capacity in dense stands | crown spatial requirements | light conditions beneath closed-canopy, mature stands | potential productivity | longevity |
|-----------|-----------|-------------------------------|---------------------------------------------|---------------------------------------|----------------------------|-------------------------------------------------------|------------------------|-----------|
| C         | Ba        | <i>amabilis fir</i>           | H                                           | H                                     | L                          | L                                                     | H                      | M         |
| C         | Bg        | <i>grand fir</i>              | M                                           | H                                     | L                          | L                                                     | H                      | M         |
| C         | Bl        | <i>subalpine fir</i>          | H                                           | H                                     | L                          | L                                                     | H                      | M         |
| C         | Cw        | <i>western redcedar</i>       | na                                          | na                                    | H                          | na                                                    | na                     | ?         |
| C         | Fd        | <i>Douglas-fir</i>            | H                                           | H                                     | M                          | L                                                     | H                      | H         |
| C         | Hm        | <i>mountain hemlock</i>       | M                                           | M                                     | L                          | M                                                     | H                      | H         |
| C         | Hw        | <i>western hemlock</i>        | H                                           | M                                     | L                          | L                                                     | M                      | M         |
| C         | Jr        | <i>Rocky Mountain juniper</i> | H                                           | H                                     | M                          | L                                                     | H                      | H         |
| C         | La        | <i>alpine larch</i>           | H                                           | H                                     | M                          | M                                                     | L                      | H         |
| C         | Lt        | <i>tamarack</i>               | H                                           | H                                     | M                          | M                                                     | H                      | H         |
| C         | Lw        | <i>western larch</i>          | H                                           | H                                     | M                          | L                                                     | H                      | H         |
| C         | Pa        | <i>whitebark pine</i>         | na                                          | na                                    | H                          | na                                                    | na                     | H         |
| C         | Pj        | <i>jack pine</i>              | na                                          | M                                     | H                          | H                                                     | M                      | M         |
| C         | Pl        | <i>lodgepole pine</i>         | L                                           | H                                     | L                          | H                                                     | M                      | M         |
| C         | Pw        | <i>western white pine</i>     | na                                          | H                                     | M                          | H                                                     | H                      | M         |
| C         | Py        | <i>ponderosa pine</i>         | na                                          | M                                     | H                          | H                                                     | H                      | M         |
| C         | Sb        | <i>black spruce</i>           | na                                          | L                                     | H                          | H                                                     | M                      | M         |
| C         | Se        | <i>Engelmann spruce</i>       | na                                          | na                                    | H                          | na                                                    | na                     | M         |
| C         | Ss        | <i>Sitka spruce</i>           | na                                          | H                                     | H                          | H                                                     | H                      | H         |
| C         | Sw        | <i>white spruce</i>           | na                                          | na                                    | H                          | na                                                    | na                     | H         |
| C         | Sx        | <i>interior spruce</i>        | na                                          | na                                    | H                          | na                                                    | na                     | H         |
| C         | Tw        | <i>western yew</i>            | H                                           | H                                     | L                          | M                                                     | L-M                    | H         |
| C         | Yc        | <i>yellow-cedar</i>           | na                                          | H                                     | H                          | M                                                     | H                      | H         |
| B         | Acb       | <i>balsam poplar</i>          | na                                          | H                                     | H                          | H                                                     | H                      | L         |
| B         | Act       | <i>black cottonwood</i>       | na                                          | H                                     | M                          | H                                                     | H                      | L         |
| B         | At        | <i>trembling aspen</i>        | na                                          | H                                     | H                          | H                                                     | H                      | L         |
| B         | Dr        | <i>red alder</i>              | na                                          | H                                     | M                          | H                                                     | H                      | L         |
| B         | Ep        | <i>common paper birch</i>     | na                                          | M                                     | M                          | H                                                     | M                      | L         |
| B         | Gp        | <i>Pacific dogwood</i>        | na                                          | L                                     | M                          | H                                                     | na                     | M         |
| B         | Kc        | <i>cascara sagrada</i>        | na                                          | M                                     | H                          | M                                                     | H                      | M         |
| B         | Mb        | <i>bigleaf maple</i>          | na                                          | L                                     | H                          | H                                                     | na                     | M         |
| B         | Qg        | <i>Garry oak</i>              | na                                          | na                                    | H                          | na                                                    | na                     | L         |
| B         | Ra        | <i>arbutus</i>                | na                                          | na                                    | H                          | na                                                    | na                     | L         |
| B         | Vb        | <i>bitter cherry</i>          | na                                          | na                                    | na                         | na                                                    | na                     | L         |

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