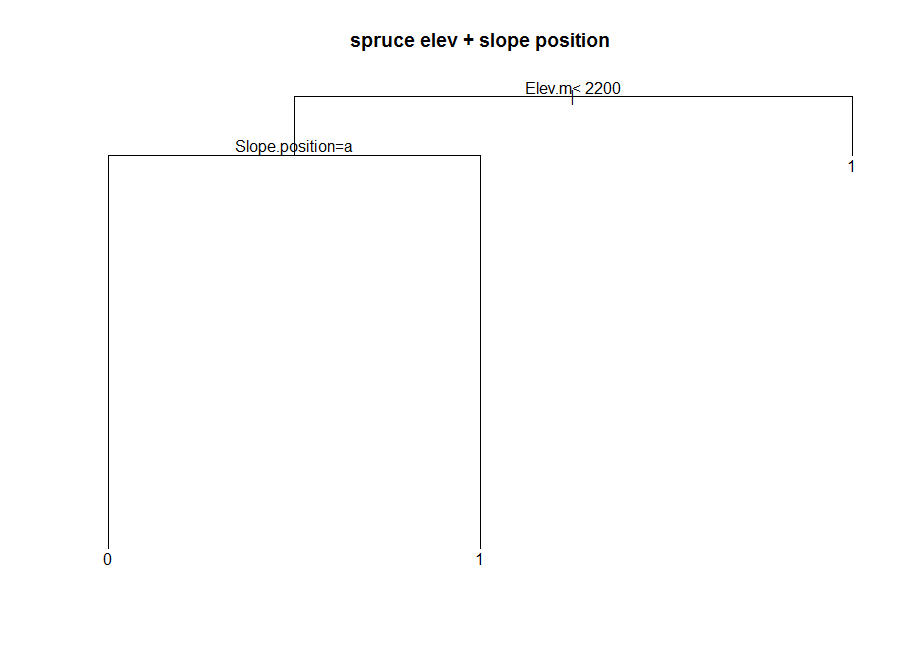
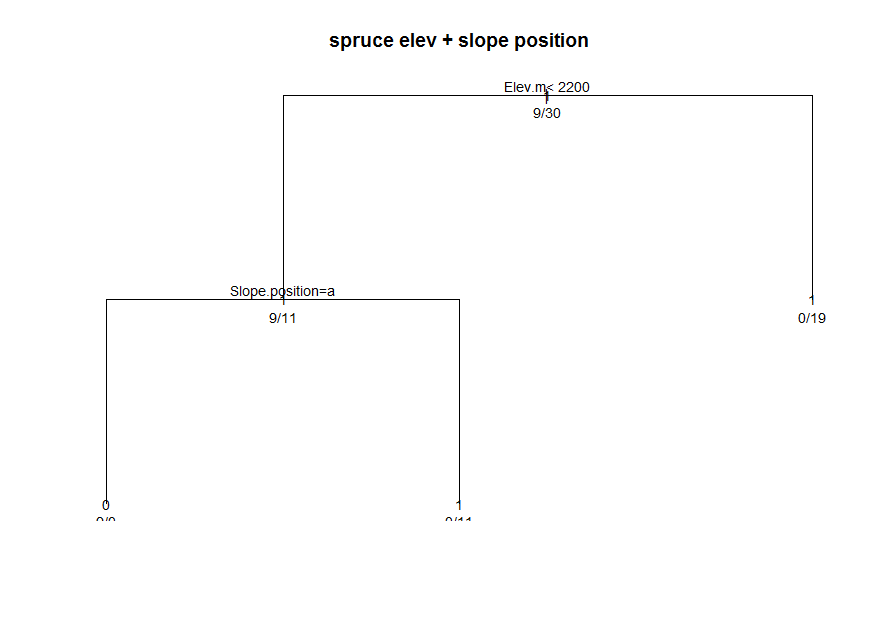
**Presence and absence data EX: Elev & Slope pos. (spruce only present < 2200m at low slope position)**

**rpart(formula = QUGA ~ Elev.m + Slope.position, data = spruce, method = "class")**

As written above this forces elev first – need to run it as a best-fits or stepwise(?)



Same as above but with plot command Uniform=TRUE (uniform branch lengths) and more labels (although some are cut off)



DATA

|  |  |  |
| --- | --- | --- |
| QUGA | Elev.m | Slope.position |
| 1 | 3200 | U |
| 1 | 3201 | U |
| 1 | 3202 | U |
| 1 | 3203 | U |
| 1 | 3204 | U |
| 1 | 3205 | U |
| 1 | 3206 | U |
| 1 | 3207 | U |
| 1 | 3208 | U |
| 1 | 3209 | U |
| 1 | 3210 | U |
| 1 | 2200 | V |
| 1 | 2205 | V |
| 1 | 2210 | V |
| 1 | 2215 | V |
| 1 | 2220 | V |
| 1 | 2225 | V |
| 1 | 2230 | V |
| 1 | 2235 | V |
| 0 | 2199 | U |
| 1 | 2185 | V |
| 0 | 2171 | U |
| 1 | 2157 | V |
| 0 | 2143 | U |
| 1 | 2129 | V |
| 0 | 2115 | U |
| 1 | 2101 | V |
| 0 | 2087 | U |
| 0 | 2073 | U |
| 0 | 2059 | U |
| 0 | 2045 | U |
| 1 | 2031 | V |
| 1 | 2017 | V |
| 1 | 2003 | V |
| 1 | 1989 | V |
| 1 | 1975 | V |
| 0 | 1961 | U |
| 1 | 1947 | V |
| 1 | 1933 | V |

U = upper and V = valley

> summary(spruce.CART.c) #detailed results including surrogate splits

Call:

rpart(formula = QUGA ~ Elev.m + Slope.position, data = spruce,

method = "class")

n= 39

CP nsplit rel error xerror xstd

1 0.50 0 1 1 0.2923527

2 0.01 2 0 1 0.2923527

Variable importance

Slope.position Elev.m

55 45

Node number 1: 39 observations, complexity param=0.5

predicted class=1 expected loss=0.2307692 P(node) =1

class counts: 9 30

probabilities: 0.231 0.769

left son=2 (20 obs) right son=3 (19 obs)

Primary splits:

Elev.m < 2199.5 to the left, improve=3.946154, (0 missing)

Slope.position splits as LR, improve=3.946154, (0 missing)

Surrogate splits:

Slope.position splits as RL, agree=0.564, adj=0.105, (0 split)

Node number 2: 20 observations, complexity param=0.5

predicted class=1 expected loss=0.45 P(node) =0.5128205

class counts: 9 11

probabilities: 0.450 0.550

left son=4 (9 obs) right son=5 (11 obs)

Primary splits:

Slope.position splits as LR, improve=9.900000, (0 missing)

Elev.m < 2038 to the right, improve=2.816667, (0 missing)

Surrogate splits:

Elev.m < 2038 to the right, agree=0.75, adj=0.444, (0 split)

Node number 3: 19 observations

predicted class=1 expected loss=0 P(node) =0.4871795

class counts: 0 19

probabilities: 0.000 1.000

Node number 4: 9 observations

predicted class=0 expected loss=0 P(node) =0.2307692

class counts: 9 0

probabilities: 1.000 0.000

Node number 5: 11 observations

predicted class=1 expected loss=0 P(node) =0.2820513

class counts: 0 11

probabilities: 0.000 1.000