**Appendix 2.** A presence/absence matrix with 337 endemic species and 139 cells was created for PAE analysis.

X 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid157 00000000000011000000000010000000011000000010000000000000000000000000000000000001010001000010000000100000000000000100000000000010000000000000000000000010000000000000000000000000000000000000000000000000000000100000000000000001100100000010000000000000000000000000000000000000000000000000000000000000000000000010000000000000100000000100001000

grid158 10000000100000000000000010000000011000000011000000101000001000000010000000100011001000000010000000100000000000000000100000001010000000000000000000000010000000010000000000000000000000010000000000000100000000100000000000000001000110100000000000000000000000000000000000000000000100001000001001000000000000000010010000000000100001000000001000

grid175 00000000000000000000000000001100000000000010000000000011000000000000000000100000000000000010000000000000000000000000000000000110000000000000000000000010000000000000000000000000000000000001000001000000000000000000000000000000001000000010000000000000001000000000010000000000001000000000000010000000000000000000010000000000100001000000000100

grid176 00000000000000000000000000000100000000000000000000000000000000000000000000100000000010000000000000000000000000000100000000000000000000000000000000000010000000010000000000000000000001000000000000000000000000000000000000000000000000000010000000000000000000000010010000000000011100000000001010000000000000000010010000000000100000000000000100

grid156 00000000000000000000100000001000000000000000000000000000000000000000000000000000000000000000000000100000001000000000000000000010000000000000000000000000000000000000000000000001000000100000000001000000000000100000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000010000000010100001000000101000

grid81 00000000010000010000000000000000000000000000000001010000000010000000000000001000000000000100000000000000000000000000000000100001000000000010000000000010001010000000000000000000000000001010000000010000100001101000001000000000000000000000000000000000000000100000000000001000000000000000100000000000010000000000000000010000000100000010000000

grid93 00000000010000000000100000100000000001000010000000000100000010000001000000100000000000000010000101000000000000010010010000000011000001010010000000010001000000000000000000000011010000011000100000001100100000111000000000000000010000000001000001000100000000010100001000011000000001000000000000100101100010000001000000000001000100010010100000

grid79 00000000000000000000000000010000000000000000000000010000010000000000000000000000000000000000000000000000000000000000001010000000000000000010000000000000000000000000000000000000000000000000000000000000000001010000000000000100000000000000000000000000000000000101000000001000000011000000000000000000000000000011000000000001000000000010000010

grid64 00000000010000010000000000010000000000000000000000000000000010000000000000001000000000010000000100000000000001000010010010100000000000000000000000000000000010000000000001000000000000010000000000000000000000011000010000000000000000000001000000000000100000000000000100001000000010000000000000000001010000000001000000000001000100000000000000

grid144 00000000000000000001000000000000000000001010100000000010000000000010000100000000011010000000000000100000000000011001000000100000000000000100000000000110000100000000000000010000001101000000011000000001000110000000000001010000000000000010000010000000000000000000000010000000010100000000001000000000000100100110000010000001111101100100000000

grid94 00100000010000000000000000000000000000000001000000010100010010010000000000000000000000000000000000000000010001000010000000100011000000000000000000010000000000000000000000000000010000001000000000000000100001011000000000000100010000000001000000100000000000000101000000001000000001100000000100100001010000000011000000000001110101011000000000

grid110 00100000010000000000000000000000000000000011000000100000010110000000000000000000000000000000000100010000000000000010000000100000000000000000000000010010100100000000000000000000000000001010000000000100000001011000000000000000000000100000000000000000000000000100000000001000000000000000100100000000000000000001000000000001000000001000000000

grid141 00000000000000000010000001000000001000001010000000000000010000000001010000100100100000000010000000000000000000010000000000000000100000000000000000000010010000000000000000000000000100000000000000000100000000000000000000000000110010100010000000000000000001000000000000000000000100010000000001010000000100100110000010000001000001000000000000

grid106 01010000001000000100000000000000000000000000000000000000000001000000000000000000000000000000100010000000000010100000000000000000000000000000000010000010000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000100000000000000000

grid164 00000000000000000001000100000000000000000000000000000010000000000000000100100000000010000000000000000100000000010000000001100000000000000000000000000000000000000100000000000000000000000000000000100000000000000000000001010000000000001000001100000000000000000000000000000000000001000001000000000000000000010010000000000100100000100000000000

grid143 00000000000100000001000000000000000000011010100000000011000000000010000000100000011010000000000000000100000000011000000000100000000000000100000000000110100100000000001010010000001001000000010000000001010110100100000000010000100000000010000010000000000000000000010010000000010000000000001000010000001100100110000010000001011101000000000000

grid124 00000000001000000000000001100000000000100000000000100100001100000001000000000000000000000000000000100000000000000000000000100000000000000000000000000010000000000000000000000000000000001000000000000100000000100000000000000000000000100010100000000000000100000000000000000000000000000000000000001000000010010100000010000000110100000000000000

grid142 00000000000000000001000000000000000000000010000000000000000000000000000000000000001000000000000000000000000000010000000000100000000000000000000000010010100100000000001000100000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000010000000000001000000000000000010000100000110000010000000110100000000000000

grid53 00000000000000110000000000000000000000000000000001000000000010000000001000000000000000000100000000000000000000000010000000000000000000000001000000000000001000000000000001000000000000001010000000000000100000001000000000000100000000000000000000010000000000000000000100011000000010000000100000000000010000000000000000010001100000000000000000

grid28 00000000000000010000000000000001000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000001000000000000000100000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000100000100000000000000000

grid43 00000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000001000000000000000000000000000000001001000000000000100000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000100000100000000000000000

grid54 00000000000000010000000000000000000000000000010011000000000010000000000000000000000000000000000000000000000000000000000000000000000000100001000000000000001000000000000000000000100000001000000000000000000000011000000000000100000000000000000000000000000000000000000000001000000000000000000000000000100000000000000100000001000000000000000000

grid35 00000000000000000000000000000000000100000000000000000000000010010000000001000000000000000000000000000000000000000000000000000000000000000000000010010000001000000000100000000000100000000000000000000000000000000000000000000100000000000000000000000010000000000000000000001000000000000000000000000001000000000000000100000000000000000000000000

grid51 00000000000000000000000000000000000000000000000000000100000010010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000100000000000000000000100000000000000000000000000000000100100000000001000000000000000000000000001000000000000000100000000000000000000000000

grid52 00000000000000010000000000000000000000000000000001000000000010000000000000000000000000000100000000000000000100000000000000000000000010000001000000000000000000000000000000000000000000000000000000000000000001001000000000000100000000000000000000000010000000000000000000010000000000000000000000000000000000000000000100000001000100000000000000

grid50 00000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000001000000100000000000000000000000000000000010010000100000000000000000000000100000000000000000000100000000000000010000000100000000000000000000000000000000000100000000011000000000000000000000000001010000000000000100000000000000000000000000

grid37 00000000000000000000000000000000000100000000000010000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000001000000000000000100000000000000000000000000000000000000000000010000000000000000000000000000000000000000001100000000100000000000000000

grid24 00000000000000010000000000000000000000000000000011000000000010000000000000000000000000000101000000000000000000000000000000000000000000000000000000000000000010000000000000001000100000000000000000000000000000000000000000000100000000000000000000010000000000000000000000001000000000000000000000000000010000000000000100000001100000000000000000

grid174 00000000000000000000000000000000000000000010000000000000000000000000000000000000000000000010000000100000000000000000000000000000000000000000010000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000001010000000000000000000000110000010010000000000000000010000000000000000000000000000

grid65 00000000000000000000000000000000000000000000000000000100000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000100000000000000000000000000000000100000000000000000001001001000010000000000000001000000000000000000000000100000000000001000000000000000100000000000000

grid145 00001000000000000000000000000000000000001000100000000000010000000000000100000000001000000000000000000100000000010001000000100001000000000000000000000010000000000000000000000000001001000000001000100000000001000000000001110000000000000010000010000000000000000000000000000000000000000000000000010010000000001010000000000000000000100000000000

grid183 00000000000000000000000000000000000000000000000000001000000000000000000000000000000100000000000000000000000000000000000000000000100000000000001000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000

grid161 00001000000100000001000100000000000000001000000000000011000000000010000100100000001010000000000000000000000000000000000000000000000000000000000000000110000000000000000010000000000001000000010000000000000110000100000001010000100000001010001010000000000000000000000010000000110000000000001000000000001100010100000000000001000000100001000000

grid182 00000000010000000000000000000000000000000000000000001000010000000000000000000000000010000000000000000100000000000000000001000000000000000000001000000010000000000000010000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000010000001000001000000000010000000010000000000000000000000000000000000

grid165 00000110000000000000001000000000000000000000000000000000000000000000000000100000000000000000000000000000000000010000000000100000000000000010000000000010001000000000010000000000000000000000000000100000000000000000000000101000000000010010000100000000000000000000000000100000000000000000000000000000000000010010000000000100000000100000000000

grid63 00000000000000010010000000010000000000000100000000000100000010011000001000101000000000001000000000100000110000000010000000000000000000000010000010001001100010000000000000000010100000000100100100001000100000011000000010000000000000000000000000001000000000000100000000001000000000000000000000000000010010000001001000000000100100000000000000

grid194 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000001000000000010000000000000000000000000000000000000000000000000010000000000000000000100000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000

grid109 00000000010000000000000000000000000000000111000000010100010111000000000000100000000000000000000100110000000000000010000000100011000000010000000000101000110000000000000000000000000000001000000000010000100001111000000000000000000000000000000000000000000000000100100010001000000001000000000100000000000000100111000001000001000100000000000000

grid140 00000000000000000010000001000000000000000010000000000000000100000000010000000100000000000010000000000000000000000000000000001000010000000000000000000010000000000000000000000000000000000000000000000100000000000000000000000001010000100000000000000000000000000000000000000100000000000000000000001000000000100000000000000000100001000000000000

grid123 00000000000000000000110001000000001000010110000000000000001100000000000000100000100000000010000000100000000000010000000000010010010100000000100001000010000000000000001000100000000000101000000000000000000000101010000000100000110000100000100000000000000001000000000000001100000100010000000000000000000000000010010000000001100101000000000000

grid189 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000001000000000000110000000000000000000000000000000000000000000000000000000000000000000000000001000000001000000000000000000000000000000000000001000000110000010000000000000000000010010000000000000000000000000

grid150 00000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000010000001000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000100001000000000000000000000000000000000000000000000000010000000000000110000000000000000000000100000000000000000000000010000

grid39 00000000000000010000000000000000000100000000000011000000000100000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000100000001001000000000000100000000000000000000010000000000000000000000000000000000000000100000000001010000000000000000000000000000000000000000

grid139 00000000100000000000000000000000000000000010000000000000000000000001000000100010100011000000000000100000000000000000000000000110000000000000000000000010000000000000000000000000000100000001000001000000000000000000000000010001100100100010110000000000000001000000000000000000000100000000000000000000000000000010000001000000100001000000000000

grid151 00000010000000000000001000000010000000000000000000000000010000000000100000000000000000000000010000000010000000000000000000000000000000000000000000000000000000001000000000000000000000000010000000000000000000000000000000000000000000010000000000000000010000000000000001000000000000000000000000000000000000000010100000000000000000000000010001

grid188 00000000000000000000000000000000000000001010000000000000000000000000000000000000000010000000001000000000000000000000100000000010000000001000000000000010000000100000000000000000000001000000000000000000000000000000000000000000101000000100000000000000000000000010010000000001000100001000000000000000000000000000010000000000000001000000000000

grid78 00000000010000100000100000100000000000000100000000000100000010001000000000001000000000000010000000000000010000000010000010000001000000010010000000001011000010000000000000000010100000000000100000000000100001111000000000000000010000000000100001000001100000000100000000001000000001100000000000000000010001000001000000000000000000000000000010

grid167 00000000000000000000000000000000000000000000000000001000010000000000000000010000000000000000000000000110000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000010000000000000001000000000000000000000100000000000000000000000000000000000000000000000000

grid38 00000000000000000000000000000000000000000000000011000100000010000000000000001000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000001000000000000100000000000000000000010000000000000000000100001000000010000000000000000000010000000000000000000000000000000000000000

grid83 00000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000100000000000001000000010000000000000000000000000000000000000000000000000000000000000

grid159 10000001000000000000000000000100001000000010000000100010000000000000000000100000001010000000000000000000000000010100100000101000000000000000000000000010000000000000001000000000000000001000000000000010000000000000000000010000100000000000000000000000000001000000000000000000100101000000000000000000000000000110000010000000100101000000000000

grid138 10000000000000000000000000000000000000001010000000000000100000000001000000100000000001000010000000100000001000010000000000010010000000000000100000000010000000000000000000000100000010000000000001000000000000000010000000000001000000000010110000000100000001000000000000000000000100000000001000000000000000000000000000000000100001000000100000

grid160 00000001000000000001000100000100000000001010000000000011000000000010000000000000000010000000000000100000000000010000000000000000000000000000000000000110000100000000001000000000000000000000010000000010000100000100000001010000100000000010001010000000000000000000000010000000110000000000001000000000000100000100010010000001100001100000000000

grid187 00000000000001000000000000000000000010000010000000000000000000000100000000000000000000000010001000000000000000000000000000000000000000001000010100000010000000000000000000000000000000100000000011000000000000000000000000000000000000000010000000000000000000000010000000000100000000000000000010000000000000000010010010000000000001000000000000

grid95 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000001000000000000000000000000000001000000000000000100001001000000000000000000000000000000000000000000000000000000100010000000000000000000000000000000000000010000000000000000000000000000000

grid190 00000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000100000000000000000000000001000000000000000000000000000000000000001000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000010000000000000000000000000010000000000000000000000000000000100000000000000000

grid77 00000000000000000000100000100000000000000000000100000100000010101001000000000000000000010000000001000000000000000010010010010000000000010010000011001000100000000000000000000010000000010000100000000000100000011000000000000000000000000000000000000000000000010000000000001000000000000000000000000000000010000001000000000000000000000000000000

grid49 00000000000000000010000000000000000000000100000000000100000010110000000001000000000000000000000000000000100000000000000000000001000000000000000010000000000000000000000000000000100000000000000000000000000001010000000000000100000001100000100000000000000010100100000000001000000000000000000000000000000000000001000000000000000000000000000000

grid82 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000001000000000000000000000001000001000000000000000000000000000000000000000100000000000001000000000000000000000000000000000000000000000000000000100000000000000

grid173 00000000000010000000000000000000100000000000000000000000000000000100000000000100000000000010000000100000000000000000000000000000000000000000010000000000010000000000000000000101000000100000000000000000000000000000000000000000000000000000100000000000001000001000000000000000000000000000000000000000000000000000010000000000000001000000000000

grid34 00000000000000000000000000000000000000000000000000000000000010000000000001000000000000001000000000000000000000000000000000000000000000000000000010010000000010000000000000000000100000000000000000000000000000001000000000000000000000000000000000000000100000000100000000001000000000000000000000000000000000000000000000000000000000000000000000

grid92 00000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000010000000000000000000000000000000000000000000000010000000000010000000010000000000000000000000011000000000000000000001000000000001000000000000000100000000000000000000000000000000000000000000000001000000000000000000000000000010

grid48 00000000010000000010000000100000000000000100000000000000000010010000000000000000000000000000000000000001000000000000000000000000000000000000000010000000000010000010000000000000100000000000100100000000000000101000000010000000000000000001000000000000000000000100000000001000000001000000000000000000000000000000001000000000000100000000000000

grid125 00000000000000000000000000000000000000000010000000100100011110000000000000000000000000000000000000000000000000010000000000100000000000000000000000000010010000000000000000000000000000001000000000000000000001101001000000000000000000000000000000000000000000000100100000001000000001000000000000000000000000000010000010000001100100000000000000

grid67 00000000000000010000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000

grid168 00000000000000000000000000000000000000000000000000000000000000000000100000000000000000100000010000000100000000000000000000000000000000000000001000000010000000001000000000000000000000000010000000000000001000000000000000000000000000000000000000000000000000000000000001000000000000000000110100000000000000000000000000000000000000000000000000

grid68 00000000000000010000000000000000000100000000010001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000001001000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000

grid69 00000000000000010000000000000000000000000000000001000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000

grid111 00000000000000000000000000000000000000000010000000000000000010000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000100100000000000000000010000000000000000000000000000000

grid96 00000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000001000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000010000000000000000000000000000000

grid42 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000001000000000000000000000000001000000000000000000000000000000000000000000000000001001000000000000100000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000001001000000000000000000

grid76 00000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000001000000001000000000000000000000000000

grid105 01000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid107 00000000001000000000000000000000000001000100000000000100000011000001000000000000000000000000100000000000000000011000001000010000000100000000100000000000000000000000000100000000000000000100100000000000000000010000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000100100000000000000001000010000000000000

grid108 00000000000000000000000000000000001001100110000000000100000110101001000100100100000000010000100010000000000000011010000000000000000001100010000000000010010000000000000000000010000100001100100000000100100000111010000000000000010000000000000000100000000100000000100000001000000000000000000000000000000101100001000010000001100001010000000010

grid118 00000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000

grid12 00000000000000000000000000000000000000000000000010000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid23 00000000000000001000000000000000000000000000000010000000000000000000000001000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000001000100000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid55 00000000000000010000000000000000000000000000000010000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid120 01000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid121 01000000000000000100000000000000000000000010000000000100100000000001000000100000000000000000100000100000001010100000000000000000000000000000000000000000000000000000000100000001000010000000000000000000000000000010000000000000000000000000000000000100000001000000000000000000000000000000001000000000000000000000010000000001000000000000100000

grid122 00000000000000000000010001000000000000000010000000000000000000000000000000100000000000000000100000100000000000000000000000000010000001000000100000000010000000000000000100000001000000001000000000000000010000000010000000000001010000000000000000000000000001000000000000001000000000000000001000000000000000000000010000000000100001000000000000

grid127 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000100000000000000

grid133 00000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000

grid134 00000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid119 00000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid135 00000000000000000000000000000000000000000000001000000000000000000000100000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid102 00000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid137 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid147 00000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000

grid148 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000010000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000100000000000000000000

grid166 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000

grid152 00000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000

grid155 00000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000100000000000000000000000000010000000000000000000000000010000000000000000000001000000000000000001000000000000000000000000000000000000000000010000000000000000000000000000001000000000000000001000000000000000000000010000000010000001000000000000

grid162 00000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000100000000000000000000000000000000010000100000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100001000000

grid163 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid169 00000000000000000000000000000000000000000000001000001000000000000000000010000000000000100000000000000000000000010000000000000000000000000000001000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000110100000000000000000000100000000000000000000000010001

grid172 00000000000000000000000000000000100000000000000000000000100000001100000000100000000000000000001000100000000000000000000000000000001000000000010100000000000000000000000000000000000000000000000001000000000000000000000000000000000000000110000000000000000000001000000000001001000000000000000000000000000000000000000000000000000000000000000000

grid184 00000010000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000010000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid170 00000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000

grid185 00000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid186 00000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000100000000000000000000000000000000000000000010000000000000000100000000000000000000000000000000000000000000000000000100000000000000000000100000000000000000001000000000000100001000000000000000000000010000000000000010010000000000001000000000000

grid181 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000101010000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000

grid197 00000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000

grid22 00000000000000001000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000100000001000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid27 00000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid15 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000

grid29 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000

grid30 00000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000

grid41 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000

grid62 00000000000000000000000000000000000000000000000000000000000000011000000000000000000000000000000000000000000000000000000000000001010000000000000000100000000010000010000000000000100000000000000000001000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000001001000000000000000000000000

grid80 00000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000

grid131 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000

grid86 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000

grid104 00010000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid112 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000

grid113 00000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid114 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid116 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid126 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000100000000000000000

grid128 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid132 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid14 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid146 00000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid16 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000100000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid19 00000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid20 00000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid25 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid33 00000000000000000000000000000000000100000000000000000000000010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid36 00000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000001000000000000000000000000100000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid40 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000

grid56 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid57 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid7 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid71 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid75 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000

grid90 00010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

grid91 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001000000000000000000000000000

;