**S16 Table. Changes in Páramo cloud immersion and frost for RCP 4.5, years 2041-2060.**

With moderate climate change, 70% of Neotropical páramo zone area, including 100% of the páramo zone in Mesoamerica, Venezuela and the Cordillera de Santa Marta of Colombia, will experience declines in cloud immersion, frost, or both as early as around 2040 (2041-2060, average year 2050). These páramo habitats will dry or be subject to tree invasion. Cloud immersion or frost changes are given as percent of total zone area by change categorya.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ecoregionb | UPR, PR, or Allc | Páramo Zone Area (km2) | RHd < 0%and Frost < Frostmin2(%) | RHd < 0%(%) | Frost < Frostmin2(%) | Frost < Frostmin2 and MSDF Zoned(%) | Total Affected(%) | RHd ≥ 0%Remaining(%) |
| Talamanca | UPR |  6.8  | 100 | - | - | - |  100  | - |
| Talamanca | PR |  111  | 83 | 17 | - | - |  100  | - |
| Santa Marta | UPR |  63.7  | 86 | 14 | - | - |  100  | - |
| Santa Marta | PR |  1,322  | 26 | 74 | - | - |  100  | - |
| Merida | UPR |  709  | 59 | 32 | 8.9 | - |  100  |  |
| Merida | PR |  1,619  | 55 | 37 | 7.6 | - |  100  | 0 |
| N Oriental 1 | UPR |  3,655  | 15 | 9.6 | 58 | - |  83  | 17 |
| N Oriental 1 | PR |  2,613  | 19 | 15 | 33 | - |  67  | 33 |
| N Central/Occid | UPR |  1,660  | 37 | 1.3 | 56 | - |  94  | 4.9 |
| N Central/Occid | PR |  2,082  | 26 | 3.9 | 46 | - |  76  | 24 |
| N Oriental 2 | UPR |  765  | 0 | - | 100 | - |  100  | - |
| N Oriental 2 | PR |  1,663  | 0 | - | 88 | - |  88  | 11 |
| Real | UPR |  8,462  | 0 | 0 | 63 | - |  63  | 37 |
| Real | PR |  5,966  | 0 | 0 | 51 | - |  51  | 49 |
| Central | UPR |  7,659  | 0 | - | 18 | 38 |  56  | 43 |
| Central | PR |  1,993  | - | - | 27 | 39 |  66  | 34 |
| South America | UPR |  22,970  | 7.3 | 2.7 | 46 | 13 |  69  | 31 |
| South America | PR |  17,260  | 13 | 12 | 41 | 4.5 |  71  | 30 |
| Neotropics | UPR |  22,980  | 7.3 | 2.7 | 46 | 13 |  69  | 31 |
| Neotropics | PR |  17,370  | 14 | 12 | 40 | 4.5 |  71  | 29 |
| Santa Marta | Total |  1,386  | 28 | 72 | - | - |  100  | - |
| Merida | Total |  2,328  | 56 | 36 | 8 | - |  100  | 0 |
| N Oriental 1 | Total |  6,268  | 17 | 12 | 48 | - |  77  | 24 |
| N Central/Occid | Total |  3,742  | 31 | 2.7 | 50 | - |  84  | 15 |
| N Oriental 2 | Total |  2,428  | 0 | - | 92 | - |  92  | 7.7 |
| Real | Total |  14,430  | 0 | 0 | 58 | - |  58  | 42 |
| Central | Total |  9,653  | 0 | - | 20 | 39 |  59  | 41 |
| Mesoamerica | Total |  118  | 84 | 16 | - | - |  100  | - |
| South America | Total |  40,230  | 9.9 | 6.6 | 44 | 9.3 |  70  | 31 |
| Neotropics | Total |  40,350  | 10 | 6.6 | 44 | 9.2 |  70  | 30 |

aChange categories: RHd < 0% and Frost < Frostmin2 = Decline in relative humidity (RH) and frost (d·yr-1) falls below minimum to be páramo (Frostmin2)­­; RHd < 0% = Decline in RH; Frost < Frostmin2 = Frost falls below Frost min2; Frost < Frostmin2 *and* MSDF Zone = Frost falls below Frost min2 and adjacent to montane or subalpine dry forest. bSee Fig 10 legend for Ecoregions. cUPR=Unprotected; PR=Protected; Total=Unprotected + Protected. dPáramo adjacent to montane or subalpine dry forest will likely be invaded by montane dry forest species.