**S17 Table. Changes in páramo cloud immersion and frost for RCP 4.5, years 2061-2080.**

With moderate climate change, 81% 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 2060 (2061-2080, average year 2070). 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.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ecoregion | UPR, PR, or All | Páramo Zone Area (km2) | RHd < 0%and Frost < Frostmin2(%) | RHd < 0%(%) | Frost < Frostmin2(%) | Frost < Frostmin2 and MSDF Zoneb(%) | Total Affected(%) | RHd ≥ 0%Remaining(%) |
| Talamanca | UPR |  6.8  | 100 | - | - | - |  100  | - |
| Talamanca | PR |  111  | 92 | 7.7 | - | - |  100  | - |
| Santa Marta | UPR |  63.7  | 95 | 5.5 | - | - |  101  | - |
| Santa Marta | PR |  1,322  | 30 | 70 | - | - |  100  | - |
| Merida | UPR |  709  | 75 | 24 | 1.3 | - |  100  |  |
| Merida | PR |  1,620  | 72 | 28 | 0 | - |  100  | - |
| N Oriental 1 | UPR |  3,655  | 43 | 12 | 39 | - |  94  | 6.2 |
| N Oriental 1 | PR |  2,613  | 40 | 37 | 20 | - |  97  | 2.1 |
| N Central/Occid | UPR |  1,660  | 52 | 0 | 45 | - |  97  | 1.2 |
| N Central/Occid | PR |  2,082  | 50 | 4.8 | 28 | - |  83  | 17 |
| N Oriental 2 | UPR |  765  | 4 | - | 96 | - |  100  | - |
| N Oriental 2 | PR |  1,663  | 1.1 | 0 | 95 | - |  96  | 3.5 |
| Real | UPR |  8,462  | 3.7 | 0 | 69 | - |  73  | 27 |
| Real | PR |  5,966  | 3.7 | 0 | 61 | - |  65  | 35 |
| Central | UPR |  7,659  | 0 | 0 | 20 | 51 |  71  | 29 |
| Central | PR |  1,993  | 0 | 0 | 28 | 50 |  78  | 22 |
| South America | UPR |  22,970  | 15 | 2.8 | 45 | 17 |  80  | 20 |
| South America | PR |  17,260  | 23 | 14 | 40 | 5.8 |  83  | 18 |
| Neotropics | UPR |  22,980  | 15 | 2.8 | 45 | 17 |  80  | 20 |
| Neotropics | PR |  17,370  | 23 | 14 | 39 | 5.8 |  82  | 17 |
| Santa Marta | Total |  1,386  | 33 | 67 | - | - |  100  | - |
| Merida | Total |  2,329  | 73 | 27 | 0 | - |  100  | - |
| N Oriental 1 | Total |  6,268  | 42 | 23 | 31 | - |  96  | 4.5 |
| N Central/Occid | Total |  3,742  | 51 | 3.1 | 35 | - |  89  | 10 |
| N Oriental 2 | Total |  2,428  | 2 | 0 | 96 | - |  98  | 2.4 |
| Real | Total |  14,430  | 3.7 | 0 | 66 | - |  70  | 30 |
| Central | Total |  9,653  | 0 | 0 | 22 | 51 |  73  | 27 |
| Mesoamerica | Total |  118  | 93 | 7.3 | - | - |  100  | - |
| South America | Total |  40,230  | 18 | 7.8 | 43 | 12 |  81  | 19 |
| Neotropics | Total |  40,350  | 18 | 7.8 | 43 | 12 |  81  | 19 |

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.