**S18 Table. Changes in Páramo cloud immersion and frost for RCP 8.5, years 2041-2060.**

In a worst-case scenario, 86% of Neotropical páramo zone area, including 100% of the páramo zone in Mesoamerica, and nearly the entire Andean Cordillera Oriental of Colombia and Venezuela, 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.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | 94 | 5.7 | - | - | 100 | - |
| Santa Marta | UPR | 63.7 | 97 | 2.6 | - | - | 100 | - |
| Santa Marta | PR | 1,322 | 34 | 66 | - | - | 100 | - |
| Merida | UPR | 709 | 83 | 17 | - | - | 100 |  |
| Merida | PR | 1,620 | 78 | 22 | - | - | 100 | - |
| N Oriental 1 | UPR | 3,655 | 79 | 21 | - | - | 100 | - |
| N Oriental 1 | PR | 2,613 | 57 | 43 | - | - | 100 | - |
| N Central/Occid | UPR | 1,660 | 67 | 0 | 31 | - | 98 | 1 |
| N Central/Occid | PR | 2,082 | 63 | 5.1 | 15 | - | 83 | 17 |
| N Oriental 2 | UPR | 765 | 100 | - | 0 | - | 100 | - |
| N Oriental 2 | PR | 1,663 | 95 | 4.3 | 0 | - | 99 | - |
| Real | UPR | 8,462 | 21 | 8.8 | 53 | - | 83 | 16 |
| Real | PR | 5,966 | 30 | 13 | 37 | - | 80 | 21 |
| Central | UPR | 7,659 | 0 | - | 20 | 52 | 72 | 27 |
| Central | PR | 1,993 | 1 | 0 | 27 | 52 | 80 | 20 |
| South America | UPR | 22,970 | 32 | 7.2 | 29 | 17 | 85 | 15 |
| South America | PR | 17,260 | 46 | 19 | 18 | 6 | 89 | 11 |
| Neotropics | UPR | 22,980 | 32 | 7.2 | 29 | 17 | 85 | 15 |
| Neotropics | PR | 17,370 | 46 | 19 | 18 | 5.9 | 89 | 11 |
| Santa Marta | Total | 1,386 | 37 | 63 | - | - | 100 | - |
| Merida | Total | 2,329 | 79 | 21 | - | - | 100 | - |
| N Oriental 1 | Total | 6,268 | 70 | 30 | - | - | 100 | - |
| N Central/Occid | Total | 3,742 | 65 | 3.3 | 22 | - | 90 | 9.8 |
| N Oriental 2 | Total | 2,428 | 97 | 3 | 0 | - | 100 | - |
| Real | Total | 14,430 | 25 | 11 | 47 | - | 83 | 18 |
| Central | Total | 9,653 | 0 | 0 | 21 | 52 | 73 | 26 |
| Mesoamerica | Total | 118 | 95 | 5.4 | - | - | 100 | - |
| South America | Total | 40,230 | 38 | 12 | 24 | 13 | 87 | 14 |
| Neotropics | Total | 40,350 | 38 | 12 | 24 | 12 | 86 | 14 |

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.