

**Cabrera, O. et al. Altitude and geomorphology effects on diversity and structure of vanishing montane forest of Southern Ecuador. Diversity**

**Table S1.** Geographical location, altitude and number of plots installed in different study sites.

| District     | Sample Site    | UTM Coordinates      | Elevation (m a.s.l.) | Localities | Plots      |
|--------------|----------------|----------------------|----------------------|------------|------------|
| Loja         | * Punzara alto | 695918.18–9551856.03 | 2600                 | 5          | 15         |
|              | * Santiago     | 688751.39–9577182.94 | 2600                 | 5          | 15         |
|              | * Madrigal     | 699616.25–9550588.39 | 2500                 | 8          | 24         |
|              | ** Cajanuma    | 702267.09–9545593.12 | 2900                 | 6          | 18         |
| Celica       | °° El Achiral  | 616431.61–9549721.7  | 2100                 | 8          | 24         |
| Espíndola    | ° Cofradía     | 683100.34–9493200.12 | 2700                 | 12         | 36         |
| <b>TOTAL</b> |                |                      |                      | <b>44</b>  | <b>132</b> |

\* Centre-North Location; \*\* Centre-South Location; °° West Location; ° South Location.

**Table S2.** Variables used for analysis of the composition and structure of montane forest Southern Ecuador.

| Variable               | Source of Data                |
|------------------------|-------------------------------|
| Annual Temperature     | WORLD CLIM DATA BASE *        |
| Monthly Temperature    |                               |
| Isothermality          |                               |
| Temperature Season     |                               |
| Precipitation Season   |                               |
| Wetter Quarter         |                               |
| Driest Quarter         |                               |
| Warmest Quarter        |                               |
| Coldest Quarter        |                               |
| Physiographic Province | UNPUBLISHED GEOLOGICAL MAP ** |
| Great Landscape        |                               |
| Landscape              |                               |
| Lithology              |                               |

\* Uncorrelated variables from the set of 19 climatic variables; \*\* Regional geomorphological map at 1:50.000.  
 Physiographic Provinces: Real Mountain Range and East Mountain Range.  
 Great Landscape: Denudative and Fluvio erosional.  
 Landscape: High Hills, Low Hills, Low Mountains, Dissected Mountains.  
 Lithology: Andesitic tuffs (Achiral), Andesitic Lavas (Cofradia), Intrusive (Santiago), Whitish tuffs (Madrigal), Metamorphic (Punzara and Cajanuma).

**Table S3.** Rotated principal component loadings.

|                           | PC1    | PC2    |
|---------------------------|--------|--------|
| Elevation                 | 0.261  | 0.432  |
| Annual Temperature        | -0.326 | 0.159  |
| Monthly Temperature       | -0.313 | 0.347  |
| Isothermality             | -0.268 | 0.465  |
| Temperature Seasonality   | 0.360  | 0.022  |
| Precipitation Seasonality | -0.352 | 0.140  |
| Wetter Quarter            | -0.355 | -0.104 |
| Driest Quarter            | 0.334  | -0.201 |
| Warmer Quarter            | 0.298  | 0.371  |
| Coldest Quarter           | -0.272 | -0.490 |
| % of variance             | 76.03  | 17.2   |
| Cumulative %              | 76.03  | 93.2   |

**Table S4.** Pearson correlation matrix of different environmental variables.

|           | Elevation | AP     | MP     | I      | TS     | PS     | WQ     | DQ     | WAQ    | CQ     |
|-----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Elevation | 1         | -0.613 | -0.320 | -0.247 | 0.753  | -0.567 | -0.750 | 0.469  | 0.791  | -0.853 |
| AP        | -0.613    | 1      | 0.907  | 0.760  | -0.901 | 0.871  | 0.872  | -0.792 | -0.530 | 0.537  |
| MP        | -0.320    | 0.907  | 1      | 0.861  | -0.838 | 0.919  | 0.814  | -0.893 | -0.473 | 0.382  |
| I         | -0.247    | 0.760  | 0.861  | 1      | -0.737 | 0.825  | 0.610  | -0.846 | -0.317 | 0.137  |
| TS        | 0.753     | -0.901 | -0.838 | -0.737 | 1      | -0.947 | -0.976 | 0.885  | 0.816  | -0.763 |
| PS        | -0.567    | 0.871  | 0.919  | 0.825  | -0.947 | 1      | 0.922  | -0.984 | -0.747 | 0.609  |
| WQ        | -0.750    | 0.872  | 0.814  | 0.610  | -0.976 | 0.922  | 1      | -0.848 | -0.864 | 0.844  |
| DQ        | 0.469     | -0.792 | -0.893 | -0.846 | 0.885  | -0.984 | -0.848 | 1      | 0.703  | -0.511 |
| WAQ       | 0.791     | -0.530 | -0.473 | -0.317 | 0.816  | -0.747 | -0.864 | 0.703  | 1      | -0.937 |
| CQ        | -0.853    | 0.537  | 0.382  | 0.137  | -0.763 | 0.609  | 0.844  | -0.511 | -0.937 | 1      |

AP = Annual Precipitation. MP = Monthly Temp. I = Isothermality. TS = Temperature Seasonality.  
PS = Precipitation Seasonality. WQ = Wettest Quarter, DQ = Driest Quarter, WAQ = Warmest Quarter.  
CQ = Coldest Quarter.

**Table S5.** Values of Principal Components Analyses.

|                        | PC1  | PC2   | PC3   | PC4   | PC5   | PC6     | PC7       | PC8       | PC9       | PC10     |
|------------------------|------|-------|-------|-------|-------|---------|-----------|-----------|-----------|----------|
| Standard deviation     | 2.75 | 1.31  | 0.62  | 0.48  | 0.23  | 0.03    | 1.07E-12  | 4.90E-13  | 3.07E-13  | 4.46E-17 |
| Proportion of Variance | 0.76 | 0.17  | 0.03  | 0.02  | 0.005 | 0.0001  | 0.000e+00 | 0.000e+00 | 0.000e+00 | 0.00e+00 |
| Cumulative Proportion  | 0.76 | 0.932 | 0.970 | 0.994 | 0.999 | 100.000 | 1.00E+03  | 1.00E+03  | 1.00E+03  | 1.00e+00 |