

SUPPLEMENTARY ELECTRONIC MATERIAL (APPENDIX 1)

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**DISTRIBUTION, HABITAT ASSOCIATIONS AND
CONSERVATION STATUS OF THE SRI LANKA
FROGMOUTH *BATRACHOSTOMUS MONILIGER***

**DISTRIBUCIÓN, RELACIONES CON EL HÁBITAT Y ESTADO DE
CONSERVACIÓN DEL PODARGO DE CEILÁN *BATRACHOSTOMUS
MONILIGER***

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TABLE A1

Description of the 19 bioclimate variables and their principal component scores from the principal component analysis using the PCA tool in ArcMap. Only the main two axes are shown.

[Descripción de las 19 variables bioclimáticas y sus puntuaciones (coordinadas) en el análisis de componentes principales (obtenidos con la herramienta PCA en ArcMap). Se muestran solamente los dos ejes principales.]

| Code | Variable/ Description | Current | | Future 2050 | |
|--------|-------------------------------------|---------|--------|-------------|--------|
| | | PC 1 | PC 2 | PC 1 | PC 2 |
| bio01* | Annual temperature | -- | -0.487 | | |
| bio02 | Mean diurnal range | -0.487 | -- | -- | |
| bio03 | Isothermality | -0.331 | 0.281 | 0.308 | -- |
| bio04 | Temperature seasonality | 0.413 | -0.115 | -0.090 | -0.704 |
| bio05* | Max. temperature of warmest period | 0.914 | -0.192 | -0.172 | -0.448 |
| bio06 | Min. temperature of coldest period | 0.924 | -0.705 | -0.669 | -0.151 |
| bio07 | Temperature annual range | -0.255 | 0.795 | 0.791 | -0.333 |
| bio08* | Mean temperature of wettest quarter | 0.950 | -0.477 | -0.434 | -0.244 |
| bio09* | Mean temperature of driest quarter | 0.954 | -0.482 | | |
| bio10* | Mean temperature of warmest quarter | 0.989 | -0.487 | | |
| bio11* | Mean annual temperature | 0.959 | -0.505 | | |
| bio12 | Annual precipitation | -0.383 | 0.162 | | |
| bio13 | Precipitation of wettest period | -0.014 | -0.183 | | |
| bio14 | Precipitation of driest period | -0.489 | 0.185 | | |
| bio15 | Precipitation seasonality | 0.583 | -0.429 | | |
| bio16 | Precipitation of wettest quarter | -0.145 | -0.041 | | |

| | | | | | |
|-------|----------------------------------|--------|--------|--------|-------|
| bio17 | Precipitation of driest quarter | -0.460 | 0.200 | | |
| bio18 | Precipitation of warmest quarter | -0.346 | 0.204 | | |
| bio19 | Precipitation of coldest quarter | -0.069 | -0.189 | | |
| | | <hr/> | | | |
| | Eigenvalue | 1.682 | 0.342 | 1.048 | 1.155 |
| | % of variation explained | 84.672 | 10.141 | 99.142 | 0.665 |
| | | <hr/> | | | |

The bioclimatic variables that highly correlated with PC 1 were not used for MaxEnt modeling and are shown in bold in the text.

TABLE A2

Land-cover change matrices for all the survey sites within a 5km radius around the survey sites calculated based on Support Vector Machine algorithm: (a) The land area (km²) that either remained the same (located diagonally in the matrix) or changed from one land-cover type to another between 1998 and 2018; (b) the average of each land-cover type in 1998 and 2018, changes in land-cover change between 1998-2018 and annual land-cover change.

[Matrices de cambio de coberturas del territorio en los sitios prospectados considerando círculos de 5 km de radio centrados en ellos (obtenidos con el algoritmo de máquinas de soporte vectorial): (a) área (km²) que o bien permaneció sin transformar (en la diagonal de la matriz) o bien cambió de un tipo de cobertura del territorio a otro entre 1998 y 2018; (b) promedio de superficie ocupada por cada cobertura del territorio en 1998 y 2018, cambios total entre años y tasa de cambio anual.]

| (a) | 2018 | | | | | | |
|------|-------------------|-------------------|----------|--------|------------|-------|-------------|
| | | Agricultural Land | Built-up | Forest | Other Land | Water | Grand Total |
| 1998 | Agricultural Land | 663.4 | 8.9 | 169.1 | 91.2 | 8.9 | 941.4 |
| | Built-up | 2.9 | 2.1 | 0.9 | 1.0 | 0.2 | 7.1 |
| | Forest | 664.1 | 8.4 | 2803.1 | 71.6 | 8.8 | 3555.9 |
| | Other Land | 96.0 | 1.9 | 46.1 | 57.1 | 5.3 | 206.5 |
| | Water | 4.6 | 0.4 | 0.9 | 3.5 | 43.2 | 52.6 |
| | Grand Total | 1431.1 | 21.7 | 3020.0 | 224.4 | 66.3 | 4763.6 |

| (b) | 1998 | 2018 | Changes (1998–2018) | Annual Changes |
|-------------------|--------|--------|---------------------|----------------|
| Agricultural Land | 941.4 | 1431.1 | 489.7 | 24.5 |
| Built-up | 7.1 | 21.7 | 14.6 | 0.7 |
| Forest | 3555.9 | 3020.0 | -535.9 | -26.8 |
| Other Land | 206.5 | 224.4 | 18.0 | 0.9 |
| Water | 52.6 | 66.3 | 13.8 | 0.7 |

TABLE A3

Error matrix for the classified land-cover maps. (a) for the year 1998 and (b) for the year 2018. User's accuracy (commission error) represents the probability that a pixel classified into a given land-cover type actually represents that land-cover type on the ground. It is computed by dividing the number of correctly classified pixels in each land-use category by the total number of pixels classified under the same land-cover type (summation across each row). Producers' accuracy (omission errors, this value represents how well reference pixels of the ground cover type are classified) is calculated by dividing the number of correctly classified pixels in each land-cover type (on the major diagonal) by the number of reference pixels known to be of that land-cover type (the column total).

[Matriz de confusión para los mapas de clasificación de cobertura del territorio para (a) 1998 y (b) 2018. La exactitud del usuario (errores de comisión) representa la probabilidad de que un píxel de la imagen clasificado como un tipo de cobertura dado realmente represente ese tipo de cobertura en la realidad. Se calcula dividiendo el número de píxeles correctamente clasificados en cada categoría de cobertura del territorio por el total de píxeles clasificados con el mismo tipo de cobertura (la suma se hace por filas). La exactitud del productor (errores de omisión) representa el grado de éxito en la clasificación de píxeles de referencia. Se calcula dividiendo el número de píxeles correctamente clasificados en cada tipo de cobertura (en la diagonal) por el número de píxeles de referencia de los que se sabe la categoría a la que pertenecen (el total de las columnas).]

1998

| (a) | Agricultural | Built-up | Forest | Other | Water | Total | User's Accuracy |
|-------------------------|--------------|----------|--------|-------|----------------------|-------|-----------------|
| Agricultural | 70 | 2 | 5 | 5 | 6 | 88 | 79.5 |
| Built-up | 1 | 19 | 0 | 1 | 2 | 23 | 82.6 |
| Forest | 1 | 0 | 287 | 4 | 3 | 295 | 97.3 |
| Other | 0 | 0 | 1 | 13 | 0 | 14 | 92.9 |
| Water | 0 | 0 | 0 | 1 | 45 | 46 | 97.8 |
| Total | 72 | 21 | 293 | 24 | 56 | 466 | |
| Producer's accuracy (%) | 97.2 | 90.5 | 98.0 | 54.2 | 80.4 | | |
| | | | | | Overall Accuracy (%) | | 93.1 |

2018

| (b) | Agricultural | Built-up | Forest | Other | Water | Total | User's Accuracy |
|-------------------------|--------------|----------|--------|-------|----------------------|-------|-----------------|
| Agricultural | 63 | 0 | 5 | 4 | 0 | 72 | 87.5 |
| Built-up | 2 | 49 | 0 | 1 | 0 | 52 | 94.2 |
| Forest | 3 | 0 | 276 | 0 | 0 | 279 | 98.9 |
| Other | 0 | 0 | 1 | 19 | 0 | 20 | 95.0 |
| Water | 0 | 0 | 0 | 0 | 44 | 44 | 100.0 |
| Total | 68 | 49 | 282 | 24 | 44 | 467 | |
| Producer's accuracy (%) | 92.6 | 100.0 | 97.9 | 79.2 | 100.0 | | |
| | | | | | Overall Accuracy (%) | | 96.6 |

TABLE A4

The results of the Generalized Bayesian Multilevel model based on Bernoulli distribution. Seven main effects, two interaction terms, and a single grouping factor were included as predictors of the presence and absence of the Sri Lanka frogmouth.

[Resultados del modelo bayesiano multinivel generalizado binomial. Se incluyeron como predictores siete efectos simples, dos términos de interacción y un factor de agrupamiento para predecir la presencia o ausencia del podargo de Ceilán.]

| Model variables | Parameter estimate | Upper credibility limit | Lower credibility limit |
|---|--------------------|-------------------------|-------------------------|
| Distance to nearest protected area* | -1.25 | -2.10 | -0.52 |
| Distance to nearest surface waterbody | 0.11 | -0.33 | 0.55 |
| Altitude* | -1.65 | -2.55 | -0.92 |
| Distance to nearest built environment | 0.08 | -0.34 | 0.58 |
| Local-scale forest cover | 1.17 | -0.40 | 2.83 |
| Landscape-scale forest cover* | 1.59 | 0.13 | 3.14 |
| Local-scale forest cover loss | -0.62 | -2.07 | 0.66 |
| Landscape-scale forest cover loss | -0.81 | -2.04 | 0.56 |
| Forest cover: local x landscape scale* | -0.96 | -1.56 | -0.54 |
| Forest-cover loss: local x landscape scale* | -0.77 | -1.32 | -0.30 |

*Predictors with a regression coefficient different from zero where the credibility limits do not include zero.

Figure A5: Results of Jackknife evaluations of relative importance of predictor variables for Sri Lanka Frogmouth MaxEnt model for current (a) and future (2050) (b) scenarios. The bioclimatic variables of Jackknife were selected based on the Pearson correlation values derived from the principal component analysis (Tables A1 and A5)

[Resultados de las evaluaciones jackknife de la importancia relativa de los predictores en el modelo MaxEnt de distribución del podargo de Ceilán en (a) la actualidad y (b) el futuro (2050). Las variables bioclimáticas se seleccionaron basándose en las correlaciones de Pearson derivadas del análisis de componentes principales (Tablas A1 y A5).]

