Zootaxa 3802 (2): 300–300
www.mapress.com/zootaxa/

Correspondence

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3802.2.12
http://zoobank.org/urn:lsid:zoobank.org:pub:FB7FF724-B53C-49E7-A124-A05CA6854C65

Neotropical region: a shapefile of Morrone's (2014) biogeographical regionalisation

PETER LÖWENBERG-NETO
Instituto de Ciencias da Vida e da Natureza – UNILA. Av. Tancredo Neves, 6731, C.P. 2064, CEP 85867-970, Foz do Iguaçu, Parana, Brasil. E-mail: peter.lowenberg@unila.edu.br

In biogeography, spatial comparisons provide a quantitative assessment of the overlap between taxic distributions and areas. This information is used to describe taxonomic geographic distributions employed in further analyses. Spatial comparisons were traditionally made by visually comparing points of geographic occurrence against a map of areas, such as provinces or regions. A more precise way to conduct this task is using Geospatial Information Systems (GIS). To improve the quality of future analyses, we aimed at providing a vector file of the biogeographical regionalisation by converting the published map into a polygon shapefile.

The shapefile (.shp) spatial data format is smaller than topological data structure (ESRI, 1998) and it is a popular open data transfer format that can be read by a wide variety of programs. The recently published biogeographical regionalisation of Morrone (2014a) was mapped into a geospatial vector file (i.e., an ESRI shapefile). The shapefile is freely available and may be downloaded at <http://purl.org/biochartis/neo2014shp>.

We imported the original map (Morrone 2014a, Figure 12, p. 24) as a TIFF figure into ArcMap (ESRI, 2012). The conversion occurred in three steps: 1) defining the geographic location based on a former georeferenced shapefile; 2) creating polygons over provinces limits; and 3) inserting provinces information into the shapefile table. As a geographic reference, we used the APRS™ world map (freely available at http://aprsworld.net/gisdata/world/world-modified.zip). 2000 control points were then added, linking known figure positions to known positions in map coordinates. Once the figure was fitted to the boundaries of the georeferenced world map, polygons were created over each area. Additionally, to diminish area distortions, we revisited polygons based on geographic references provided in Morrone's area descriptions (Morrone, 2014a). For each polygon, we added the following information in the shapefile table: province number and name, dominion, subregion, region, source and citation reference. Names of transition zones were placed in subregion column as presented in Morrone (2014a).

It is the most comprehensive and methodologically supported biogeographical scheme for the Neotropical region to date. Morrone's (2014a) biogeographic regionalisation was based on the distributional ranges of terrestrial plants and animals. It was the first biogeographical catalogue of the Neotropical region that provides citation, description, supporting references, synonymies and an exhaustive list of endemic taxa for each province. Its hierarchical structure was given by an area cladogram that provides a historical narrative of diversification and geological events (Morrone, 2014b).

References

Environmental Systems Resource Institute (1998) *Shapefile Technical Description*. Redlands, CA, 30p.
Environmental Systems Resource Institute (2012) ArcGIS Desktop Sofware, Release 10. Redlands, CA, USA.
Morrone, J.J. (2014a) Biogeographical regionalisation of the Neotropical region. *Zootaxa*, 3782 (1), 1–110. http://dx.doi.org/10.11646/zootaxa.3782.1.1
Morrone, J.J. (2014b) Cladistic biogeography of the Neotropical region: identifying the main events in the diversification of the terrestrial biota. *Cladistics*, 30, 202–214. http://dx.doi.org/10.1111/cla.12039

 Accepted by M. Ebach: 15 Apr. 2014; published: 26 May 2014