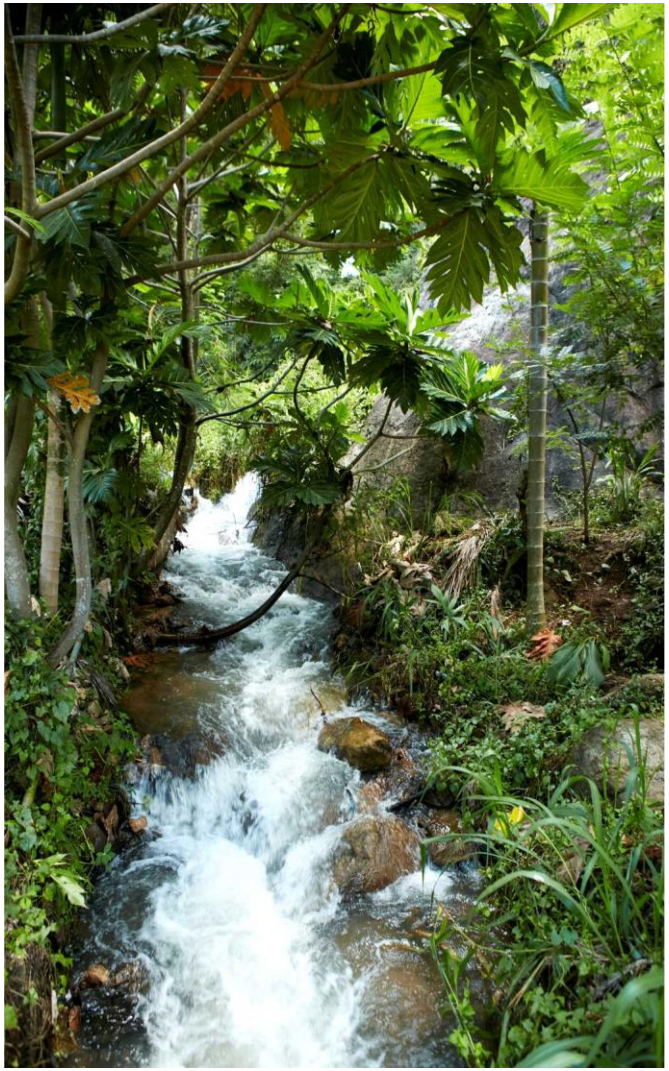

Map design and layout

UNEP-WCMC

May 2018 | Monrovia

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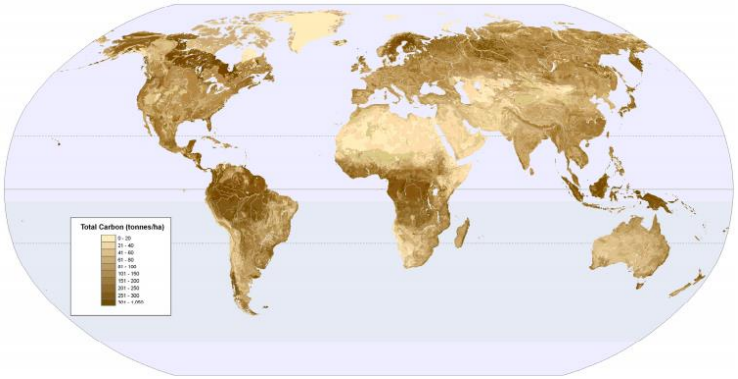
Maps

Maps are a tool for communication, they should tell a story in a well designed manner



Designing a good map

The following four guidelines should be considered:

1. **Define your target audience**: How and in which context will the map be used?
2. **Determine the message you want to communicate**: What do the data show? Is there more than one message?
3. **Determine the nature of your data**: How many variables should be mapped? Is there a time dimension?
4. **Determine the appropriate mapping technique, colours and symbols**: How do you want to present the values of the maps to reflect the accuracy of the data in relation to the purpose of the map?
   What are the conventions for colours or classifications?

Source: http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

Additional design tips

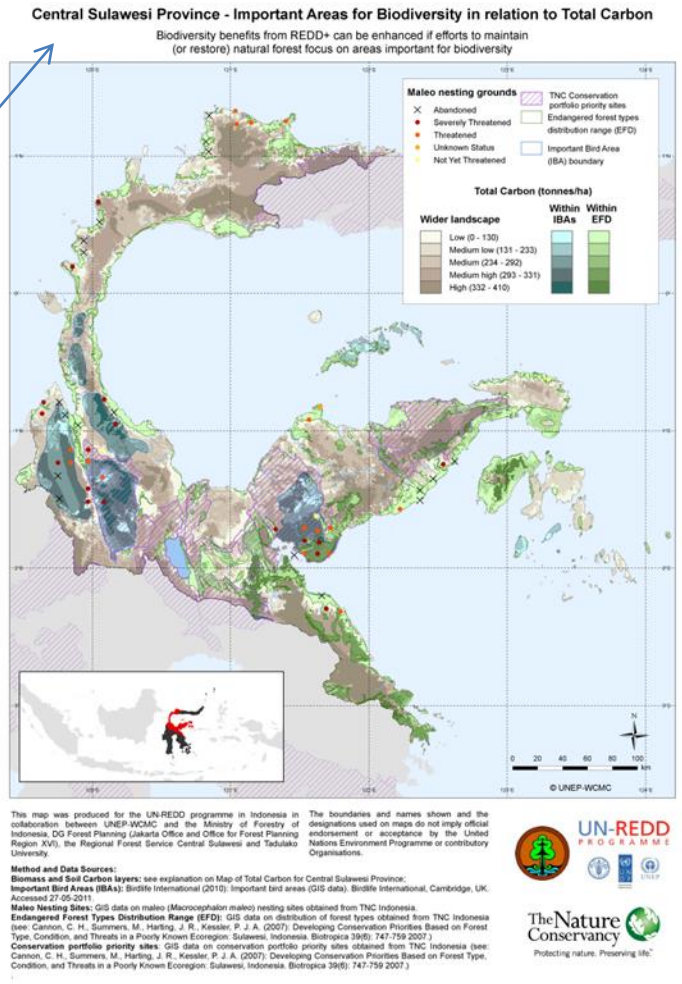
- **Keep it simple!** Be careful not to distract or confuse your audience by displaying too much information or too many visually conflicting elements

- **Know your audience** – how will they interpret the map?

- Design your maps so that they **are independent of story texts or data tables**. A map should be understood on its own, without need for further reference to surrounding texts or notes

Map components

The **map title** should give a clear idea of what the map is about. It needs to be short and concise. Subtitles may be added to provide more detailed information (e.g. unit of measure)



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

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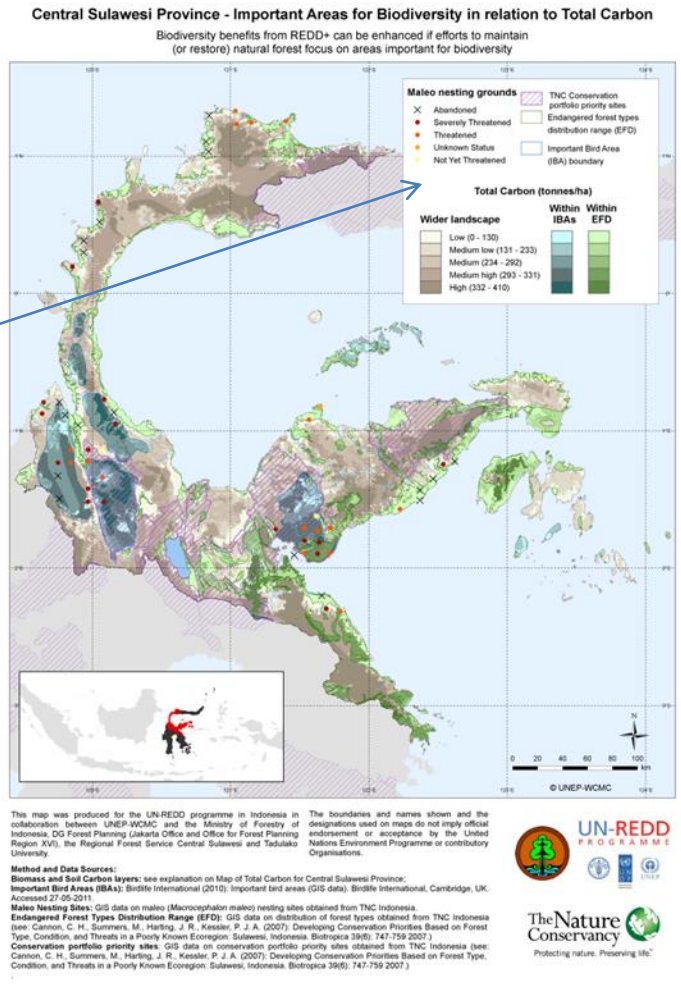
Map components

The **legends** should identify all the symbols, patterns and colours used to represent the data in the map



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

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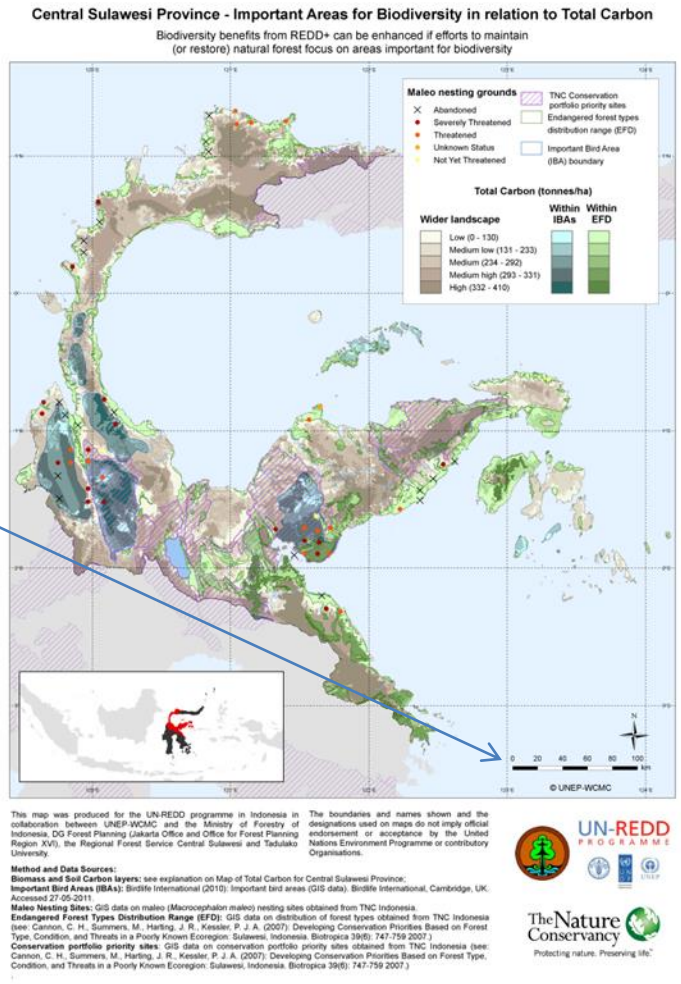
Map components

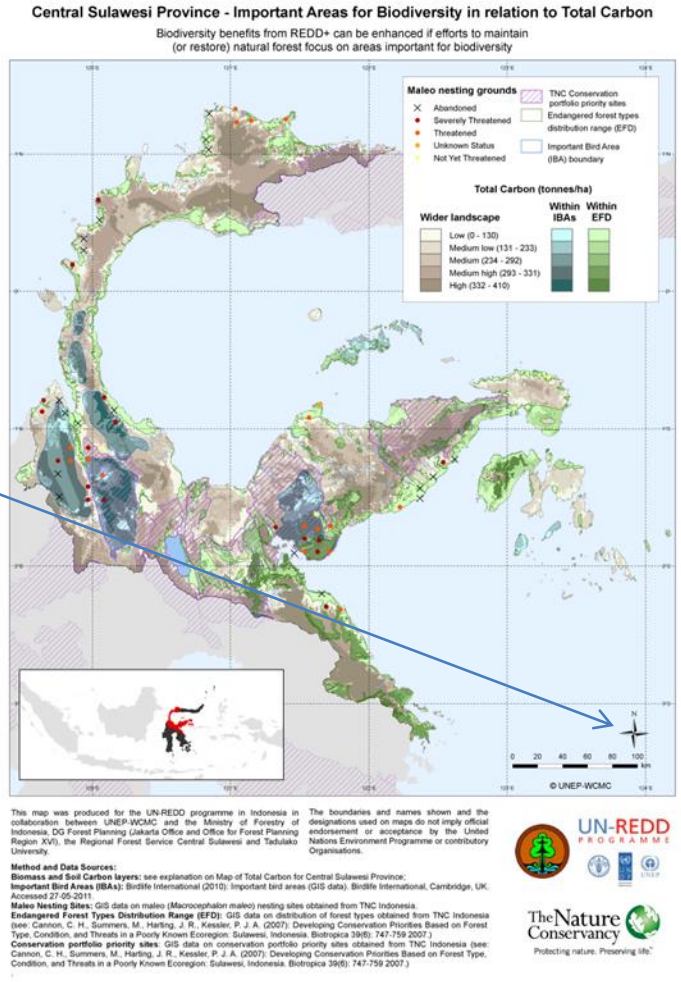
The **map scale** should be provided to help the user measure distances and compare different maps



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

Map components

A **North arrow** should be provided to indicate the orientation of the map



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

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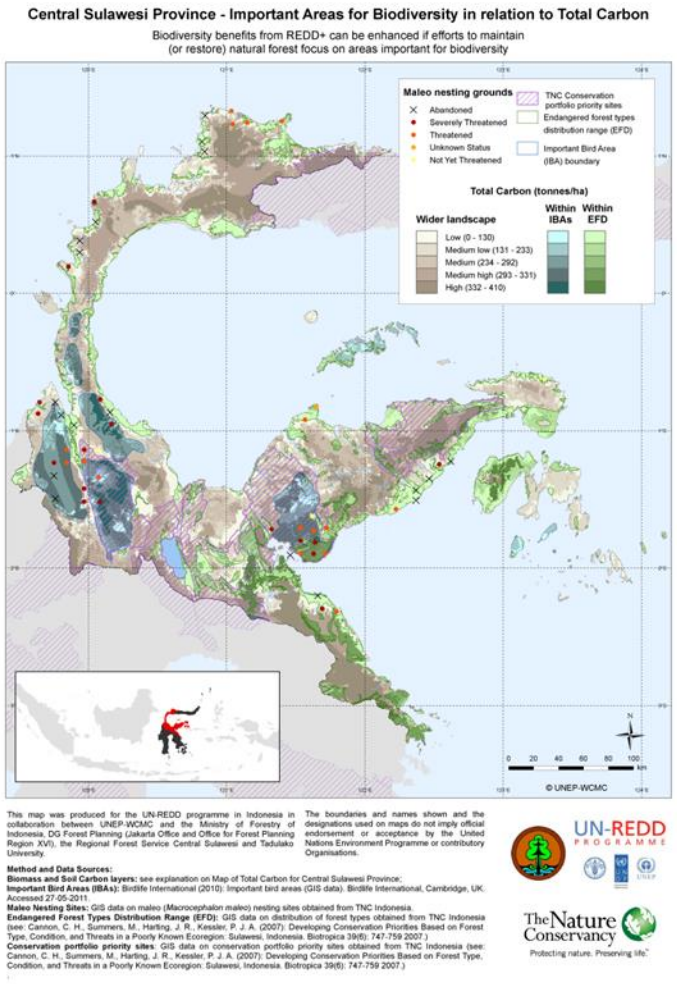
Map components

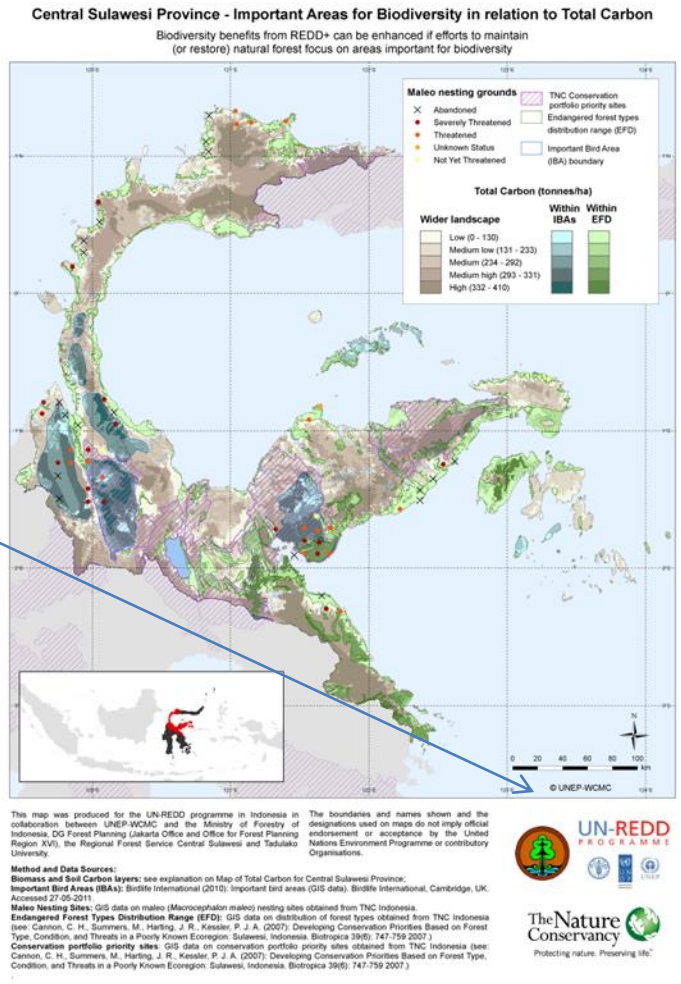
The **data source** should be identified at the bottom of the map



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

Map components

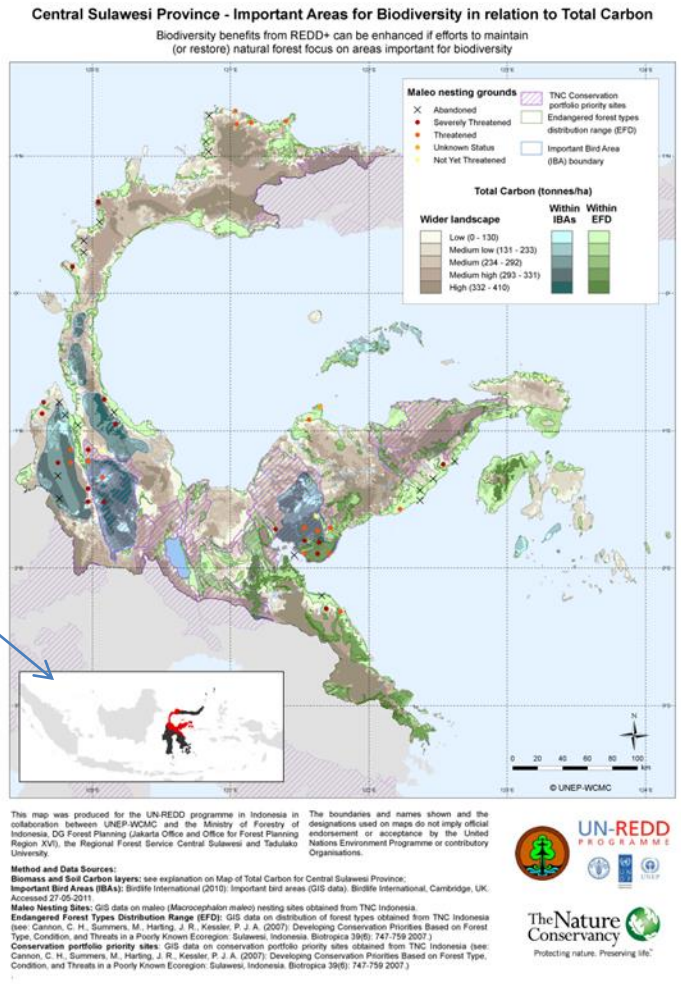
The **copyright** information should identify the author(s) responsible for its content at the bottom of the map



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

Map components

An **inset map** either provides the overall location of the place that is mapped, as in this case, or shows a scale-up of a part of your map.



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

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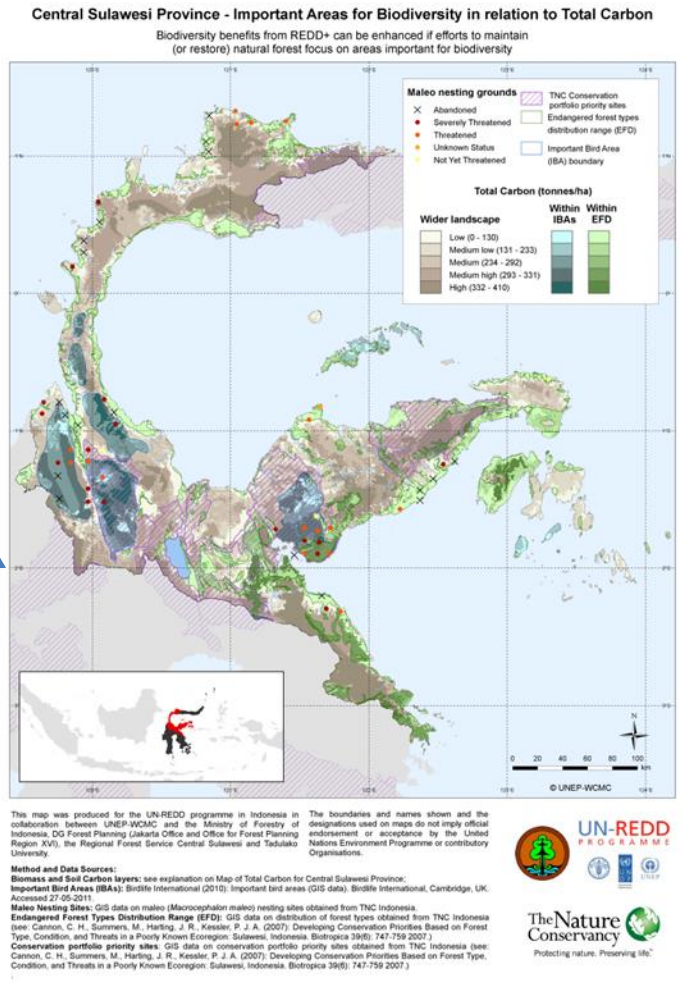
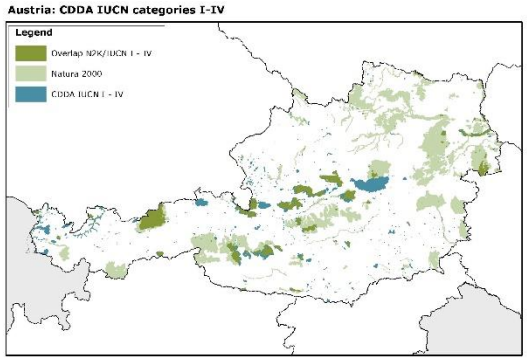
Map components

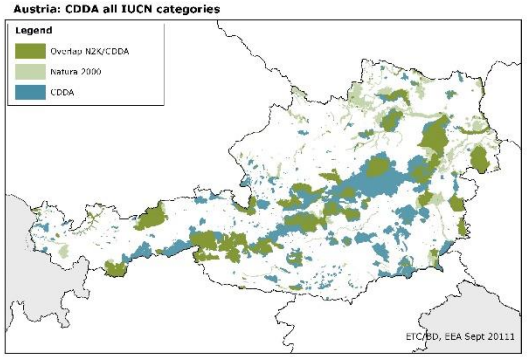
Graticules can be added to make it possible to georeference the map and provide more accurate information on scale.



Source:
http://www.unece.org/fileadmin/DAM/stats/documents/writing/MDM_Part2_English.pdf

Consistency





Natura 2000 & CDDA IUCN I-IV
Of the entire network

17.9% consists of overlap
71.8% consists solely of Natura 2000
10.3% consist solely of CDDA

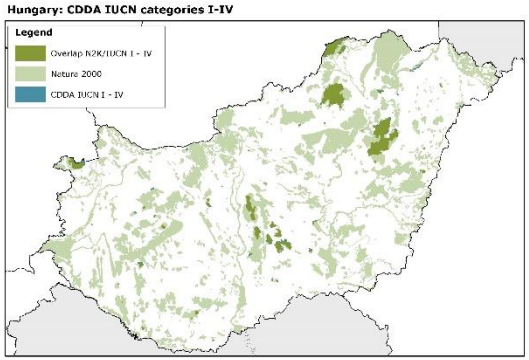
Total: 16.4% of Austria designated

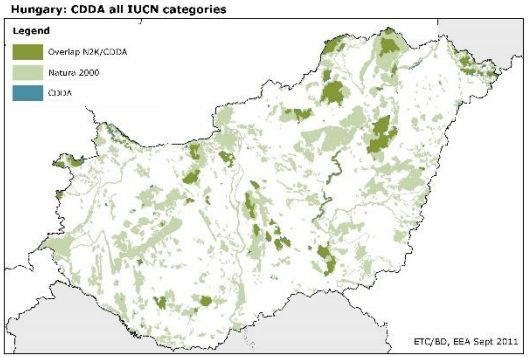
Natura 2000 & CDDA (all IUCN categories)
Of the entire network

38.2% consists of overlap
15.9% consists solely of Natura 2000
45.9% consist solely of CDDA

Total:27.1% of Austria designated

Figures refer to the terrestrial part of the country and are subject to further analysis





Natura 2000 & CDDA IUCN I-IV
Of the entire network

8% consists of overlap
90.9% consists solely of Natura 2000
1.1% consist solely of CDDA

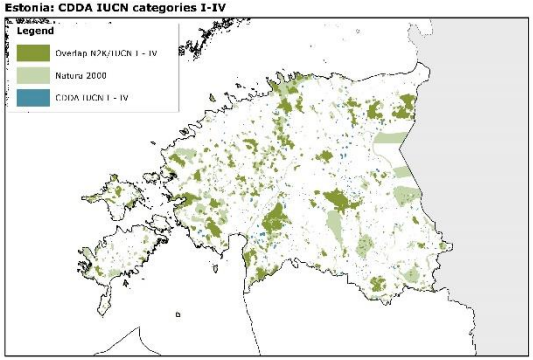
Total: 21.7% of Hungary designated

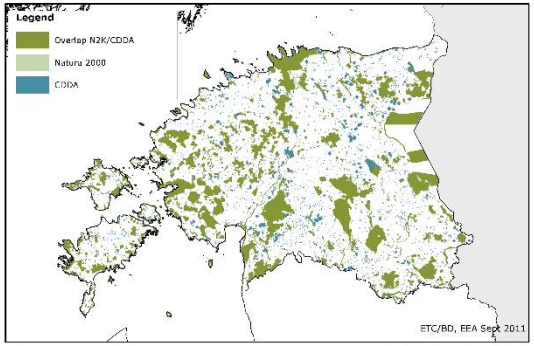
Natura 2000 & CDDA (all IUCN categories)
Of the entire network

15.6% consists of overlap
81.3% consists solely of Natura 2000
3.1% consist solely of CDDA

Total:22.1% of Hungary designated

Figures refer to the terrestrial part of the country and are subject to further analysis





Natura 2000 & CDDA IUCN I-IV
Of the entire network

30.6% consists of overlap
68.1% consists solely of Natura 2000
2.3% consist solely of CDDA

Total: 18.2% of Estonia designated

Natura 2000 & CDDA (all IUCN categories)
Of the entire network

51.1% consists of overlap
0.5% consists solely of Natura 2000
48.4% consist solely of CDDA

Total: 34.4% of Estonia designated

Figures refer to the terrestrial part of the country and are subject to further analysis

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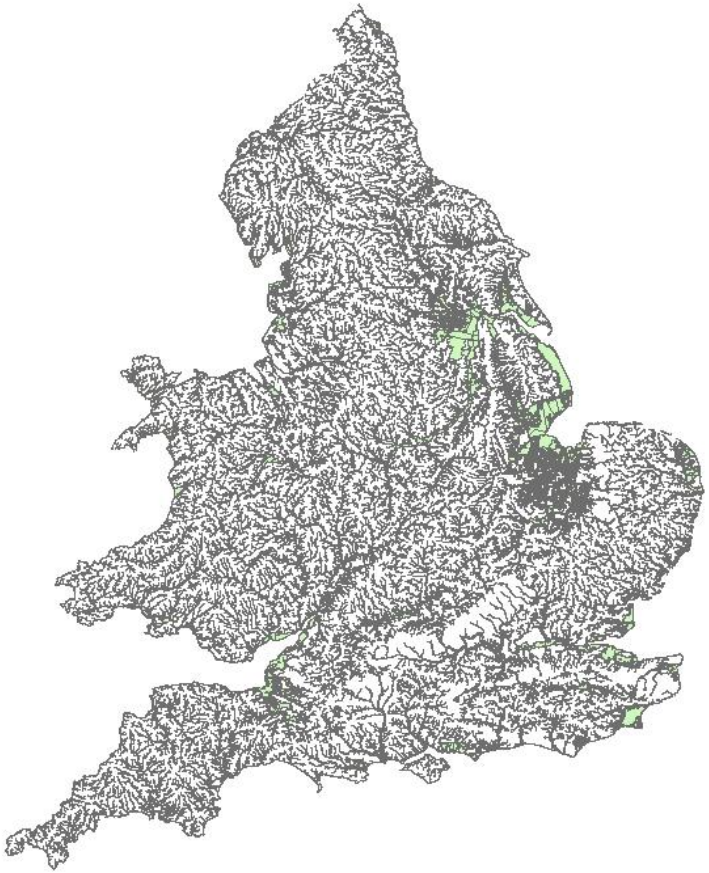
Symbology

- Try not to use overly bright colours
- Visual hierarchy – use saturated colours if you want something to stand out and softer colours if not
- Select colours that are familiar e.g. green for forest, blue for water
- Don’t use colours and symbols that are too similar which could be easily confused
- But don’t use complete opposites colours either

Map examples



Map examples

FUENTES DE DATOS:

Densidad de Carbono de la Biomasa Aérea: Avitabile, V., Herold, M., Heuvelink, G. B. M., Lewis, S. L., Phillips, O. L., Asner, G. P., Armston, J., Ashton, P. S., Banin, L., Bayol, N., Berry, N. J., Boeckx, P., de Jong, B. H. J., DeVries, B., Girardin, C. A. J., Kearsley, E., Lindsell, J. A., Lopez-Gonzalez, G., Lucas, R., Malhi, Y., Morel, A., Mitchard, E. T. A., Nagy, L., Qie, L., Quinones, M. J., Ryan, C. M., Ferry, S. J. W., Sunderland, T., Laurin, G. V., Gatti, R. C., Valentini, R., Verbeeck, H., Wijaya, A. and Willcock, S. (2016). An integrated pan-tropical biomass map using multiple reference datasets. *Global Change Biology*, 22: 1406–1420. doi:10.1111/gcb.13139

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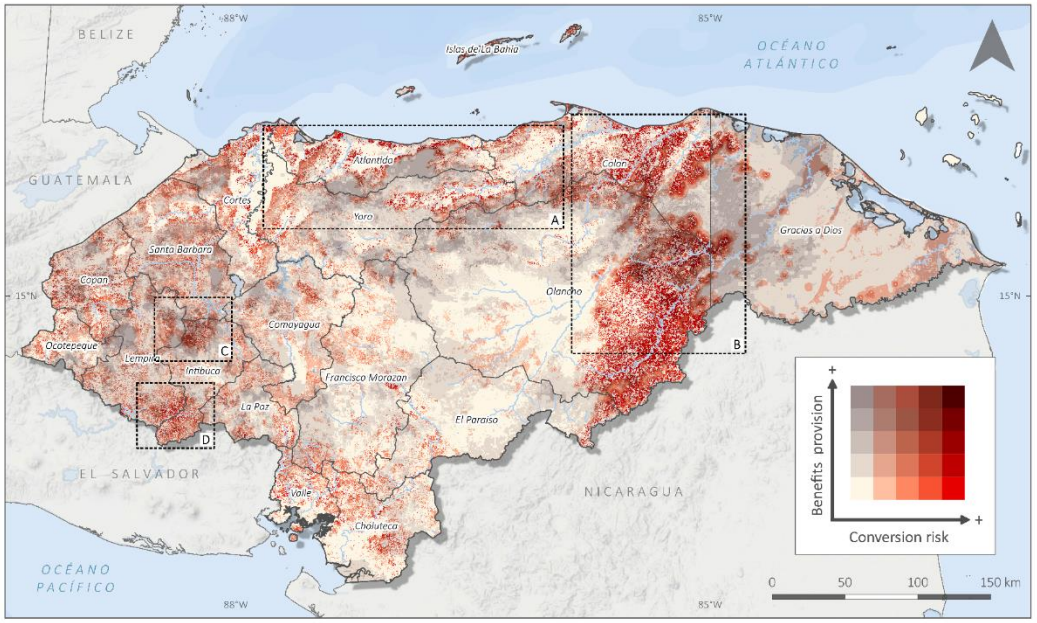
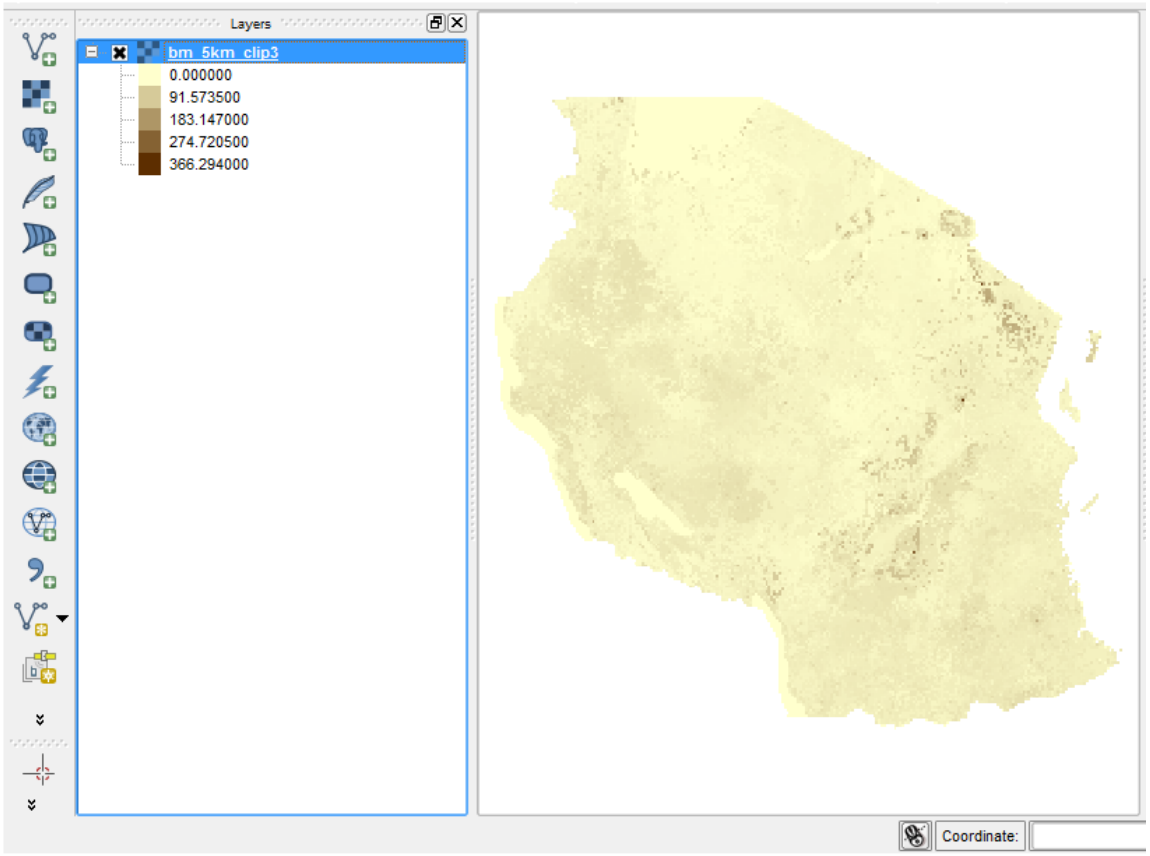
Matrix legend

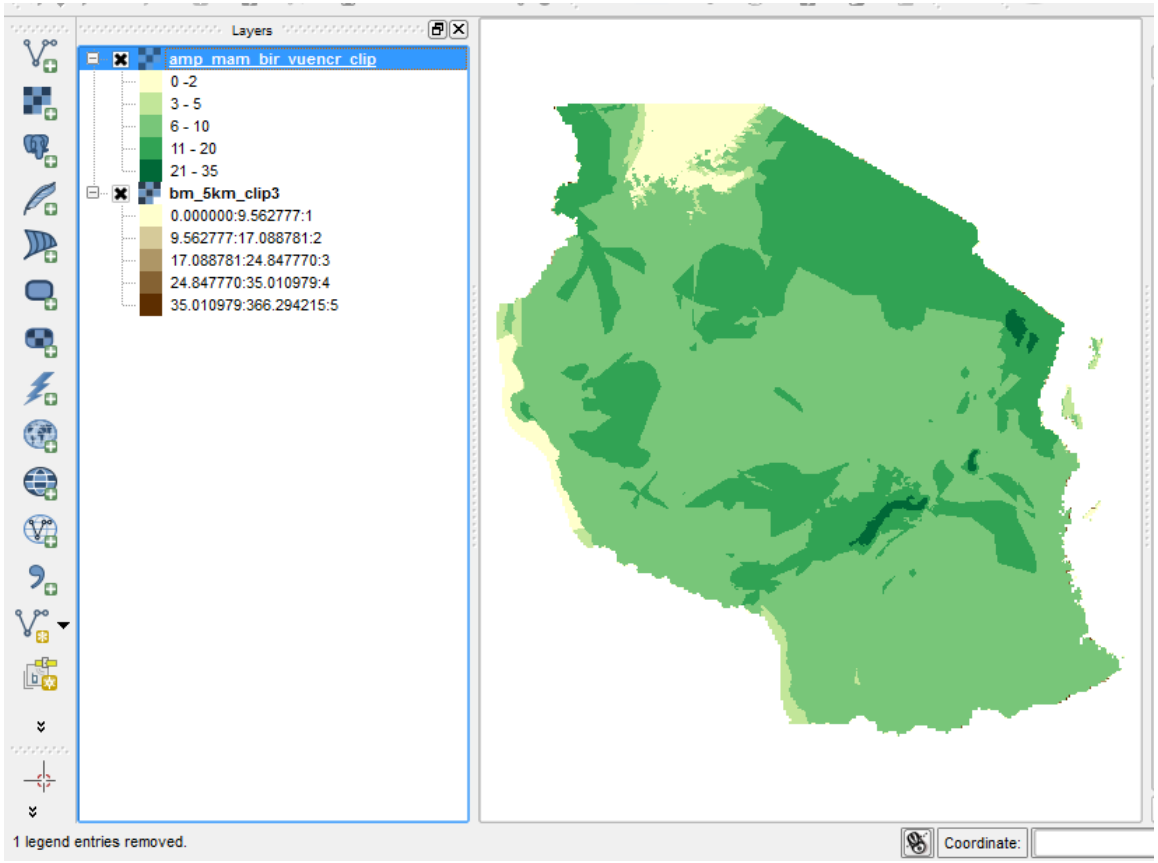
- Useful for showing two variables on one map
- A good way to convey your message to policy makers



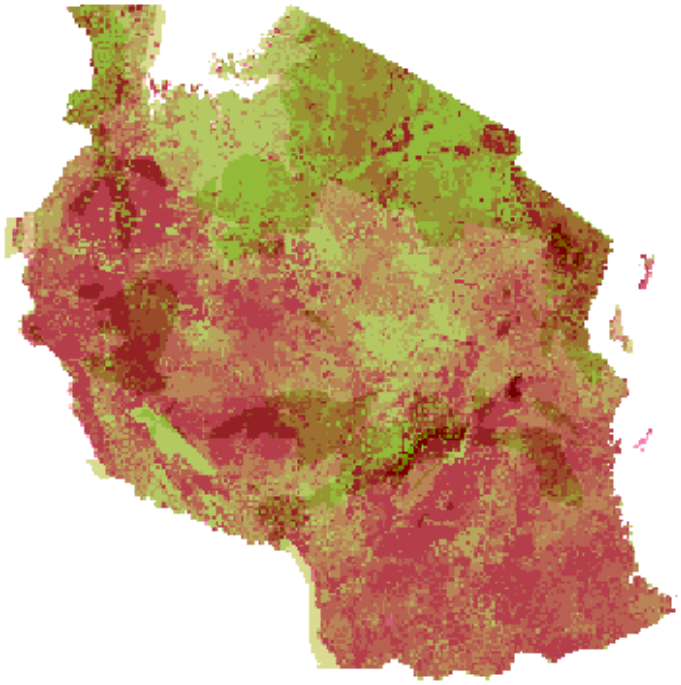
Variable 1

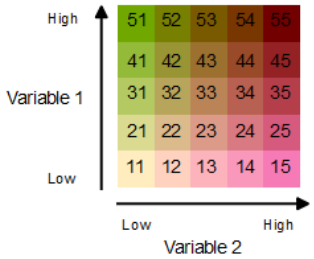

Layers
bm_5km_clip3
0.000000
91.573500
183.147000
274.720500
366.294000
Coordinate:

Variable 2


Layers
amp_mam_bir_vuencr_clip
0 -2
3 - 5
6 - 10
11 - 20
21 - 35
bm_5km_clip3
0.000000:9.562777:1
9.562777:17.088781:2
17.088781:24.847770:3
24.847770:35.010979:4
35.010979:366.294215:5
1 legend entries removed.
Coordinate:

Combined




High
Variable 1
Low
51 52 53 54 55
41 42 43 44 45
31 32 33 34 35
21 22 23 24 25
11 12 13 14 15
Low
High
Variable 2

Templates

- Allow you to create maps with the same layout
- Useful for organisations to produce consistent maps

Summary

- Simplify as much as possible! Two simple maps are better than one complicated map.
- Choose colours appropriate for application – screen presentation, publishing, both.
- Colour combinations – which themes are most important? What should be standing out most on the map?
- Think about colour-blindness – e.g. red/green colour combination not good
- Background layers – what should be labelled?
- Inset maps
- Fonts and text sizes

Thank you!

Joe Gosling | *joe.gosling@unep-wcmc.org*

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