

Map production guidelines

These guidelines cover what you will need to know for producing map content and its marginal elements (title, legend, supporting text, etc).

These general guidelines are designed to help you provide maps following sound cartographic principles, and having a common look and feel. Some maps to be made for specific projects will need to follow project specific standards in addition to these guidelines.

THE MAP...

Map layout

- Balance your map by carefully fitting the information that you want to communicate comfortably into the map space. Think about what you are trying to show. This information shouldn't be depicted as too small as to be misunderstood, nor so large that it extends outside the map space. Selection of a suitable map scale is essential.
- Try to design your map with a regularly shaped boundary.
- If possible, your map should always be oriented with north at the top.
- Unless using a pre-defined map template, ensure that you leave sufficient space for your map's marginal elements (title, legend, supporting text, etc.).

Projection and datum of your map

- For maps covering the Australian Continent use the Albers Equal Area Conic projection.
- For Albers, the projection parameters are:
 - Projection: Albers
 - Map Units: meters
 - Spheroid: GDA94 (or WGS84)
 - Datum: GDA94 (or WGS84)
 - Central Meridian: 132 degrees East (132)
 - 1st Standard Parallel 18 degrees South (-18)
 - 2nd Standard Parallel 36 degrees South (-36)
 - Latitude of Origin the Equator (0)
 - No False Origin shifts
- For small local areas of the Australian continent use the Map Grid of Australia (MGA) with the GDA94 (or WGS84) spheroid and datum.
- For maps of Antarctica use the Polar Stereographic Azimuthal projection with a line of zero distortion at 71 degrees South (-71) and the GDA94 (or WGS84) datum and spheroid.

Base information

- Base information (coastline, roads, rivers, towns etc.) gives context to your map to help people orient and understand the themes (e.g. species distributions) that you want it to show.
- Base information is designed to provide a visual background to the themes that you want to map. This can be achieved by using more subdued colours, finer line-weights and small map symbols.
- If using a digital raster map background (such as RASTER250K), ensure that the scale of your map allows sufficient detail to be understood.

Colour and shading for areas

- Thematic information (species distributions, changes in park boundaries, etc.) is the primary information you want your map to communicate.
- In general, for large areas on the map use lighter or pastel colours or more widely spaced shades and patterns. For small areas use darker or brighter colours or more closely spaced shades and patterns.
- When communicating quantitative information, select an appropriate series of class intervals.
- Ensure that readers of the map are able to easily distinguish between colours and shading on the map.
- Do not use colour spectrums (e.g. blue-green-yellow-red) as they do not print out / copy well in black and white, and some colour blind people have difficulty reading them (especially green-red combinations).
- When choosing colour ramps to represent increasing and decreasing values use colours of increasing intensity or darkness. Do not use a red colour ramp. Maps can then be printed out in black and white and still accurately convey the information. Whilst this is a little constraining, it ensures that our information products will cater for as broad an audience as possible.
- Where possible use colours which psychologically describe the theme you are representing, e.g. green for forest, blue for marine parks, etc.
- Avoid overlaying shaded areas as much as possible.
- Use visually pleasant shading styles. Some shading, especially closely spaced thick lines can be irritating to the eye.

Colour, style and line weight for lines

- When using a combination of colours and line-weights to represent different line features, ensure that readers can easily distinguish the differences between these.
- Avoid using lots of different line symbol styles – keep it simple, use different colours and line-weights instead.
- Use different line symbol styles primarily according to established map conventions, e.g. dashed line for intermittent stream, rail symbol for railway line.
- Choose your line-weights carefully, bearing in mind what you want to communicate. Never choose a heavy line-weight to symbolise a spatially intricate line feature because its intricacy will be lost. Choose a dark or distinctive colour instead.
- Use consistent line styles, colours and line-weights for map series.

Colour, style and size for point features

- Use established, simple and clear symbols wherever possible.
- Symbols which create a mental image of the object or concept represented are preferred.
- Symbols portraying related objects should have similar characteristics.
- Symbols should not be so large as to visually clutter your map or obscure other information.
- Use consistent symbol sets for a map series.

Text on maps

- Text should not obscure the content of the map
- The number of different font and font sizes you use should be kept to a minimum. Use sans (without) serif fonts, such as Univers, Triumvirate, AvanteGarde, Verdana or Helvetica, especially for web mapping.
- Use italics for the labelling of natural features (eg rivers). Where possible, these should be placed above the line feature and flow in

- sympathy with curves of the line.
- When labelling point symbols, ideally place the text label to the top right of the feature. Place labels entirely on land or water, not straddling the two.
- Select text of an appropriate size for the size and purpose of your map.

AROUND THE MAP...

Title	<ul style="list-style-type: none">• A descriptive name for the map.• Font style and size must be consistent for a map series.• Must be clearly recognisable on the map as the title.
Publisher	<ul style="list-style-type: none">• The name of the publisher of your map, as well as location and date.• For example, if the map is created in ERIN and DEW is the publisher, it should take the form: 'Map produced by ERIN, Department of the Environment and Water Resources, Canberra, January 2006'.
Copyright	<ul style="list-style-type: none">• A statement indicating who holds copyright for the map and the year of publication.• If your map is copyright to the Department of the Environment and Water Resources, it should take the form: '© Commonwealth of Australia, 2006'.• The statement should be the same font, size and colour as text used for the publication information.
Acknowledgments	<ul style="list-style-type: none">• The origin and nature of the information shown on the map, including derived or interpreted data. If you have used data acquired from other source/s, refer to the 'acknowledgment' field in the metadata as a guide for content. The statement should also indicate the currency of the data.• An example when using Geoscience Australia, National Mapping data: 'Australia, Topographic Data 1:250,000 (TOPO-250K) © Geoscience Australia, 1994. All rights reserved'.• Acknowledgments should be the same font, size and colour as text used for the publication information.• Before using the source data in your map, ensure that you are legally able to publish it in map form. Check the 'access constraints' field in the metadata before you make your map.
Legend	<ul style="list-style-type: none">• Clearly depict colouring and display characteristics for the primary information shown on the map. The legend should display symbols or coloured boxes with a brief description of each. It is not necessary to have a legend for all items on the map such as coastline or population centres when the meaning of these is obvious.• The text for the legend should be more prominent than that for the scale information and other information such as caveats.
Scale	<ul style="list-style-type: none">• Use a simple scale bar with an optional representative fraction in the form of: 'Scale: 1:xxx,xxx'.• Scale bar should refer to distances measured at the middle latitude of the map. If your map's latitudinal range is greater than five degrees,

(optional)	<ul style="list-style-type: none">• you should state that the scale is a 'nominal' scale.• On web based interactive mapping, the scale bar must be re-drawn with every zoom-in or zoom-out to reflect the correct map scale.• Small scale thematic maps (eg at 1:20,000,000 scale) do not require scale bars.
Map number (optional)	<ul style="list-style-type: none">• Should be included if the map is part of a numbered series. Normally this is grouped with the title.
Contact (optional)	<ul style="list-style-type: none">• Use the format 'For further information contact [name or position], [phone], [e-mail].'• Contact statement should be the same font, size and colour as text used for the publication information.
Status and constraints (optional)	<ul style="list-style-type: none">• The status of your map may be draft, working map, version number, etc. Access constraints may include 'confidential', 'internal use only', etc.
Caveats (optional)	<ul style="list-style-type: none">• A caveat, statement of the reliability and restrictions on use.• Caveats should be the same font, size and colour as text used for the publication information.
Graticule (optional)	<ul style="list-style-type: none">• At scales larger than 1:5,000,000 the minimum requirement to delineate geographical coordinates (latitudes and longitudes) is to display labelled graticule 'tics' (short lines) around the borderline of the map sheet. Small scale maps (eg at 1:10,000,000 scale) do not require graticules.
North arrow (optional)	<ul style="list-style-type: none">• Only include a north arrow on your map if the clear delineation of north will be advantageous.• If you use a graticule on your map, a north arrow is redundant.• Do not use a north arrow for small-scale maps with projections in Albers or Lamberts as north varies across the map.
Projection and datum statement (optional)	<ul style="list-style-type: none">• At scales larger than 1:5,000,000 your map should show information about the type of projection it uses together with a full description of any projection parameters.• At scales larger than 1:1,000,000 your map should also identify which mapping datum it uses.• Small scale maps (eg at 1:10,000,000 scale) do not require projection information.
Additional text (optional)	<ul style="list-style-type: none">• Additional text should be the same font, size and colour as text used for the publication information.
Logos (optional)	<ul style="list-style-type: none">• Avoid use of logos on maps• Where a number of organisations have been responsible for the content and publication of a map, each organisation should receive equal prominence.

- Logos should not be overly prominent on the map. Where more than one logo is included, the logos should be the same size and prominence and would generally be grouped together.

Figure 1: An example of a simple thematic map that meets the guidelines

