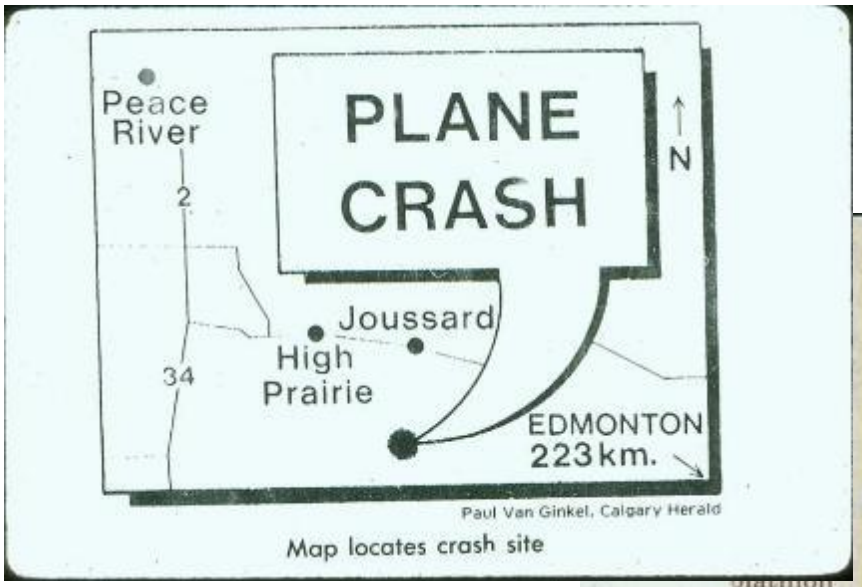
Ancillary data

‘subordinate’ = Information required to explain the display contents

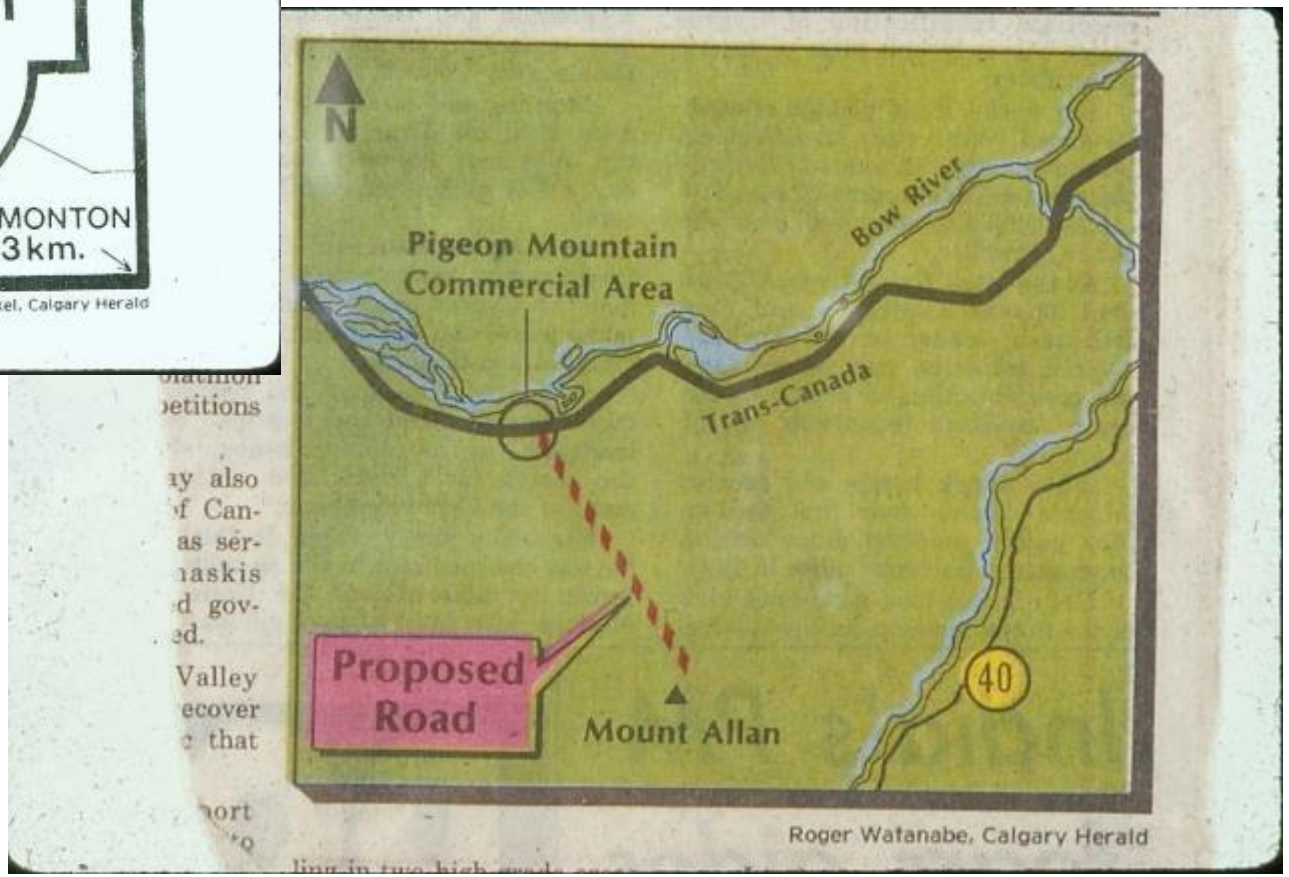
https://gis.arizona.edu/sites/default/files/page-attachements/What%20all%20good%20maps%20should%20have.pdf

1. **Scale** is **required** – it explains the amount of reduction

No scale – then it's a diagram, not a map



Map locates crash site



- Scale **must** be given on the map / display
- it is usually placed near the bottom of the map
- *Verbal statement*, ratio or graphic bar (best for output)

A

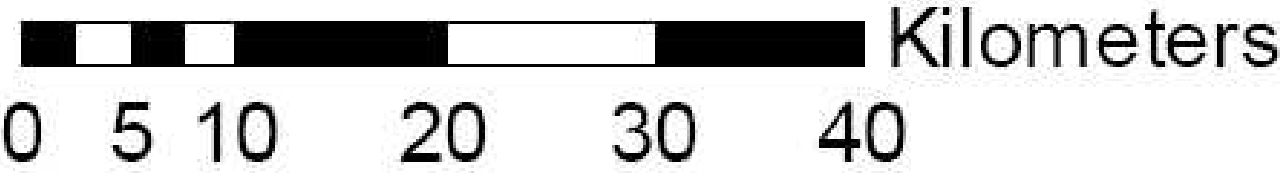
Kilometres …

- Use round numbers
- Subdivide as appropriate
- Use appropriate units e.g. 1km not 1000m

Examples of scale bar abuse (#1 ArcGIS error)

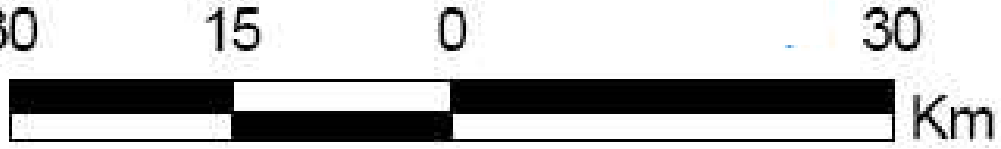
The least worst **Kms …**

A-



B

B-



C

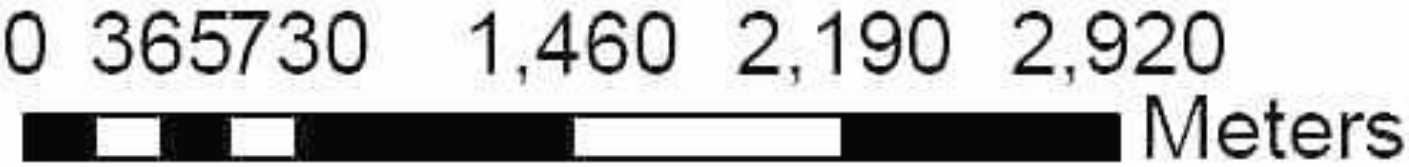

1 0.5 0 1Kilometers

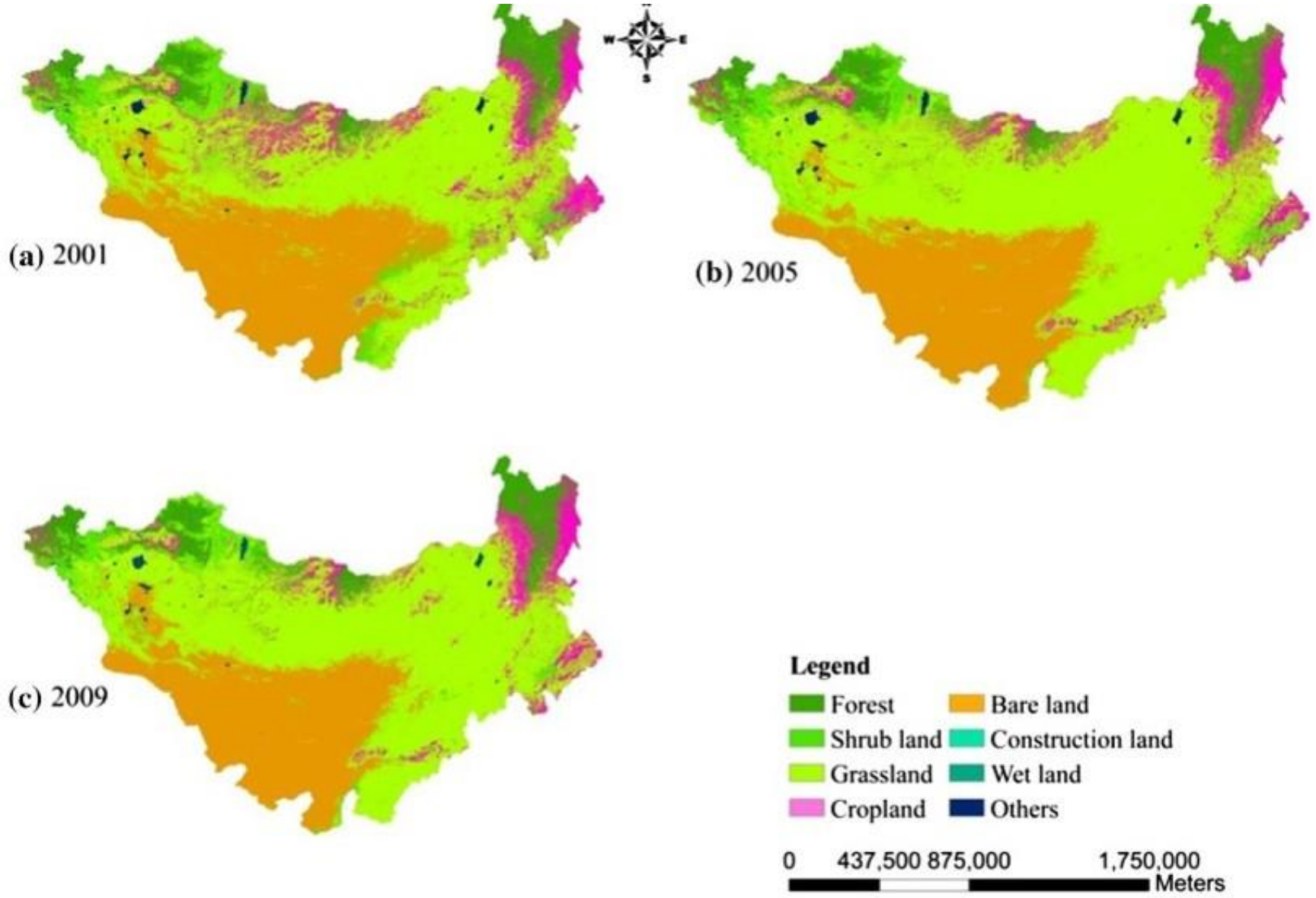
km

D


100 50 0 100 200 300 Metres

F


0 365730 1,460 2,190 2,920
Meters

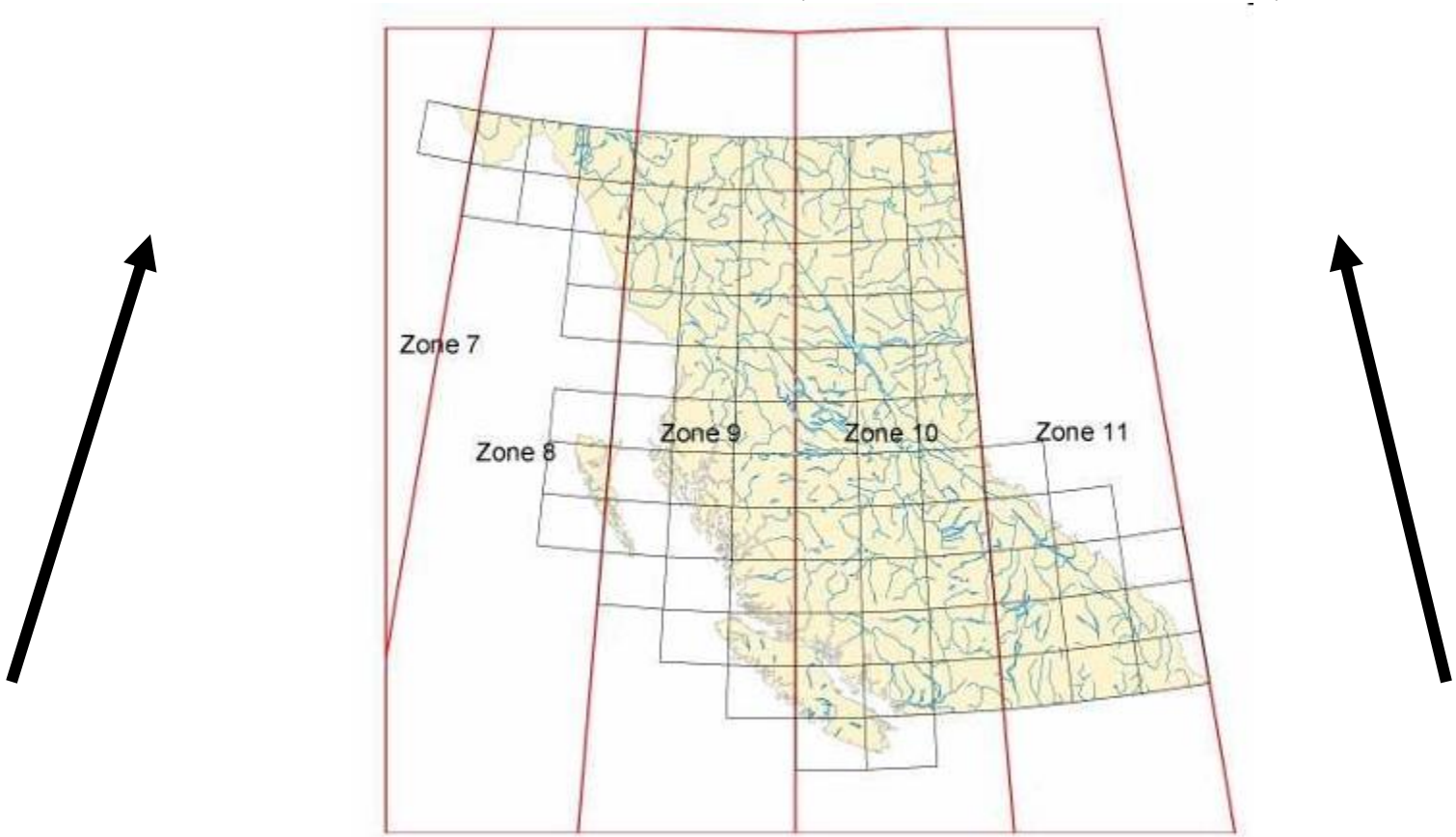

(a) 2001
(b) 2005
(c) 2009
Legend
Forest
Bare land
Shrub land
Construction land
Grassland
Wet land
Cropland
Others
0
437,500 875,000
1,750,000
Meters

2. Direction

A North arrow is **optional** if it is clear that (true) North is to the top (ArcGIS error #2)

If North is not to the top, a North arrow is a **MUST**

A North arrow is wrong for some maps (= most world maps)



True north and Grid north

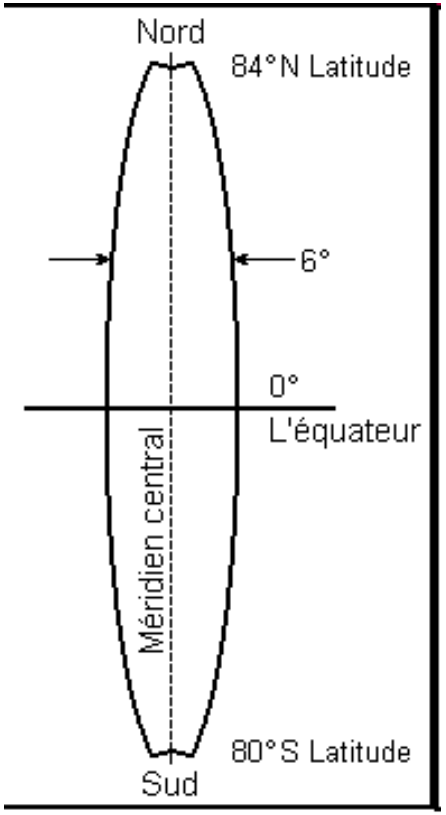
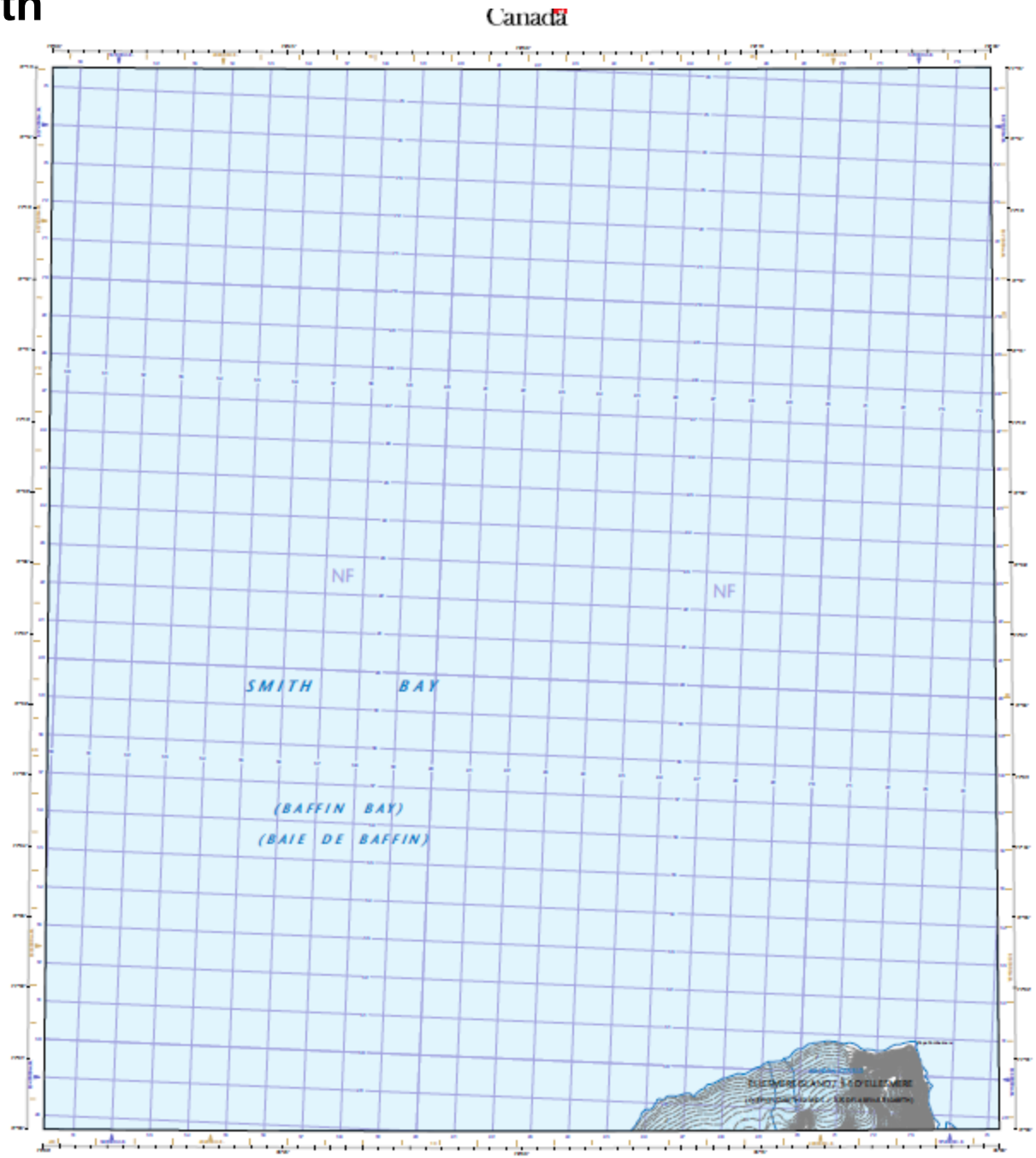
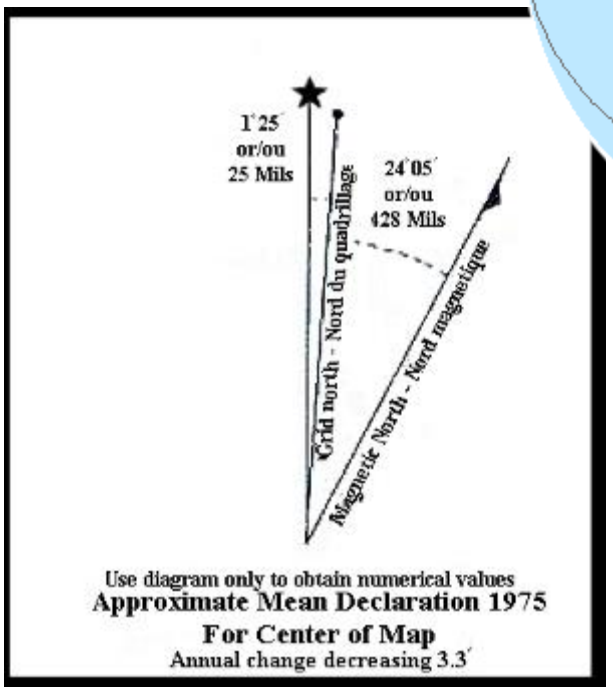


Figure 1 - Zone UTM

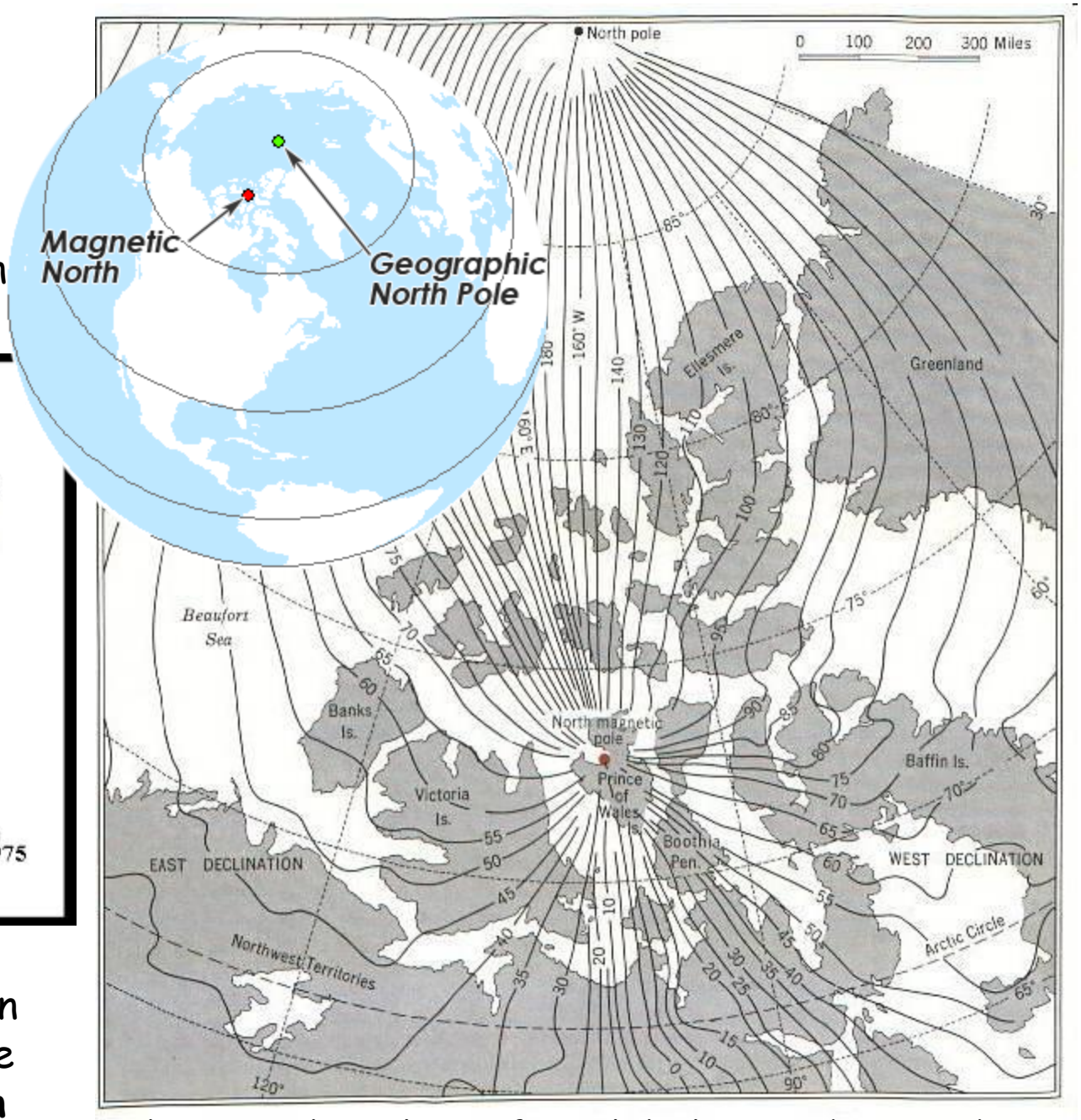


Magnetic North

There are 3 'Norths'
The compass points to the magnetic north pole, not the 'true' north pole or grid north



The difference between magnetic north and true north is the **declination**



This map shows lines of equal declination (isogones)

Magnetic North

The compass points to the magnetic north pole, not the 'true' north pole

The difference between magnetic north and true north is the **declination**

3. Title: often at top

Geographic area

map content:
(if not general)
and date (if variable)

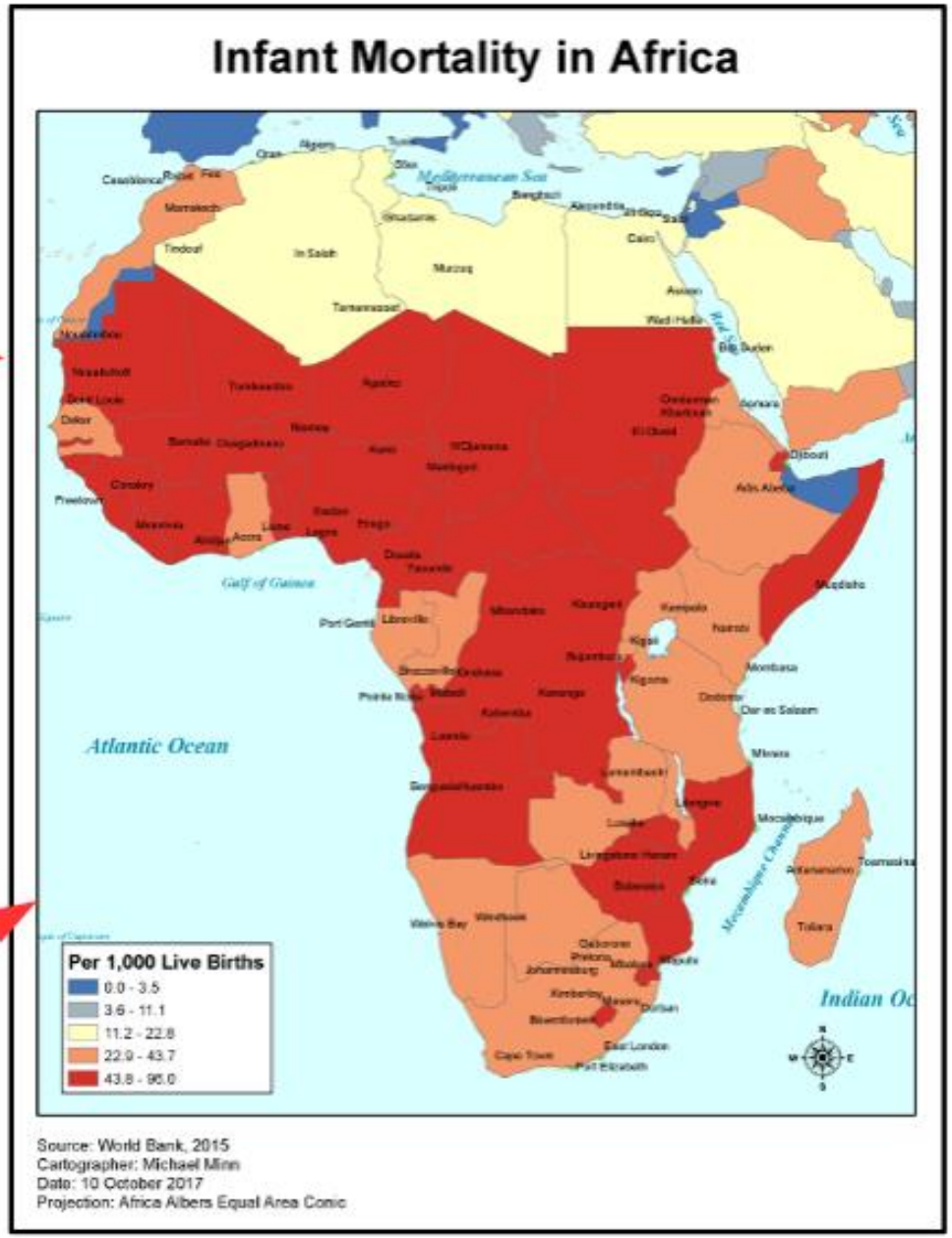
No need for the word ‘map’

Title usually required – but it may be a caption in journal/magazine articles

4. Borders – neatlines

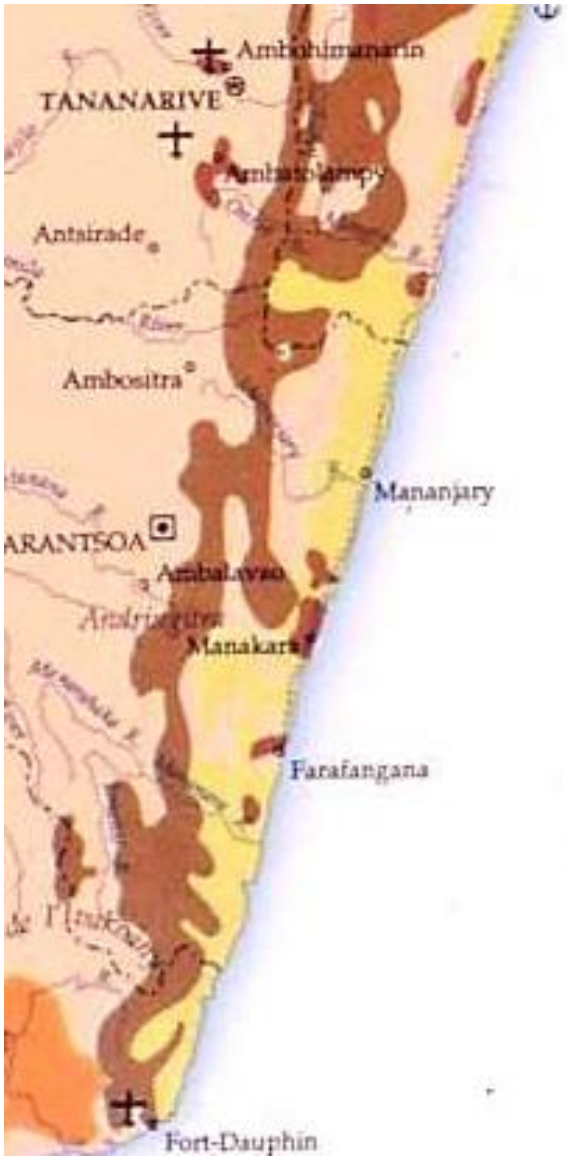
Page Frame Line

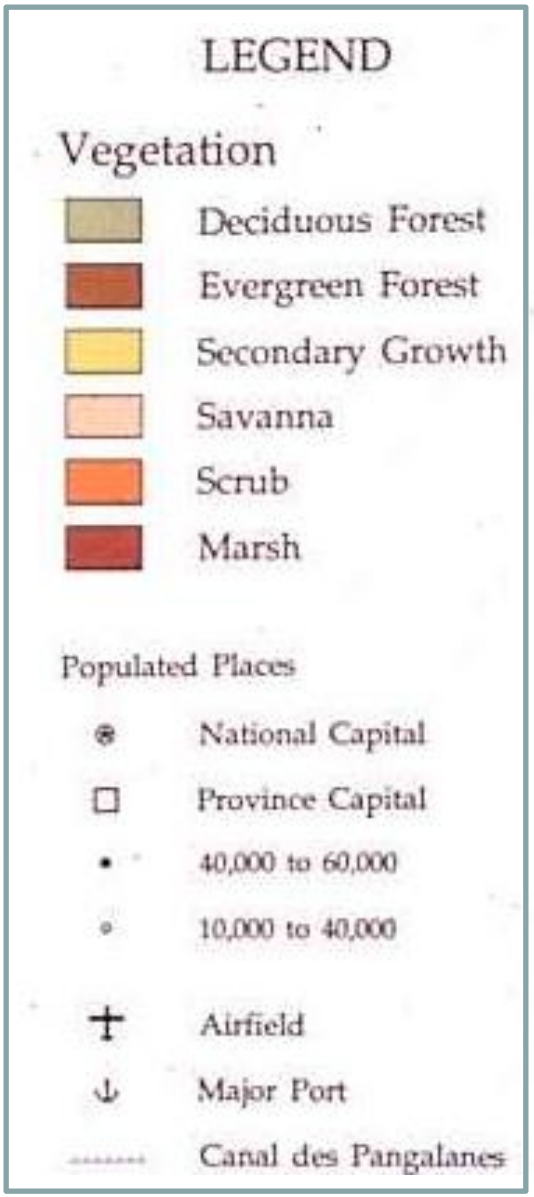
Neat Line



5. Legend

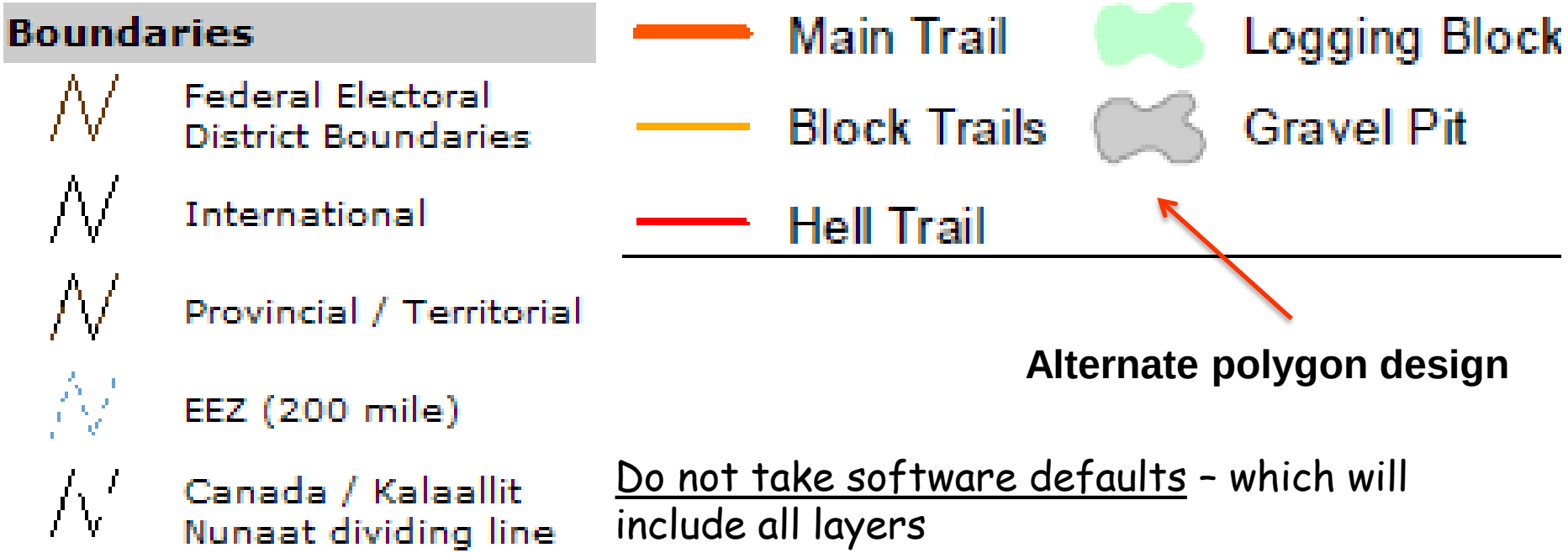
- Symbols should be in legend <u>unless</u> explained by lettering
- Symbols appear in legend **<u>exactly</u>** as on map, same size etc..
- May be omitted if obvious on map, e.g. lakes if one is named
- Symbols on the left, labels on the right
- Boxes for area symbols
- Optional box for legend
- Capitalise the first letter





No 'ziggie-zaggies' … (early versions of ArcGIS/ArcView)

Line symbols should be a straight or gently curved section



Do not take software defaults – which will include all layers

… no need to include the obvious e.g. lakes

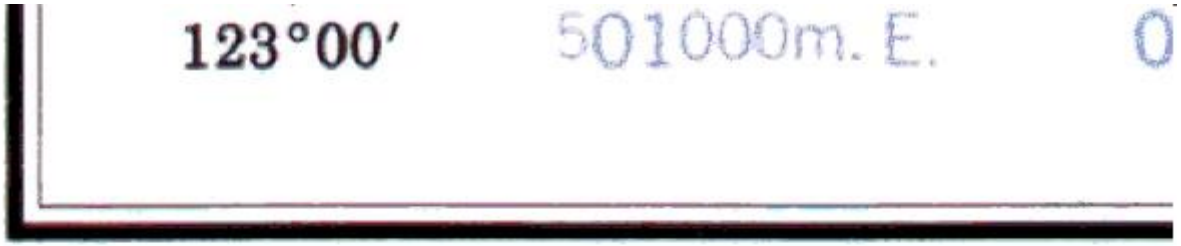
Legends

https://pro.arcgis.com/en/pro-app/latest/help/layouts/add-a-legend.htm

6. Data source / credits

A set of statements usually at the bottom in small text explains how the data were derived, and when

Not required for common base data e.g. coastlines



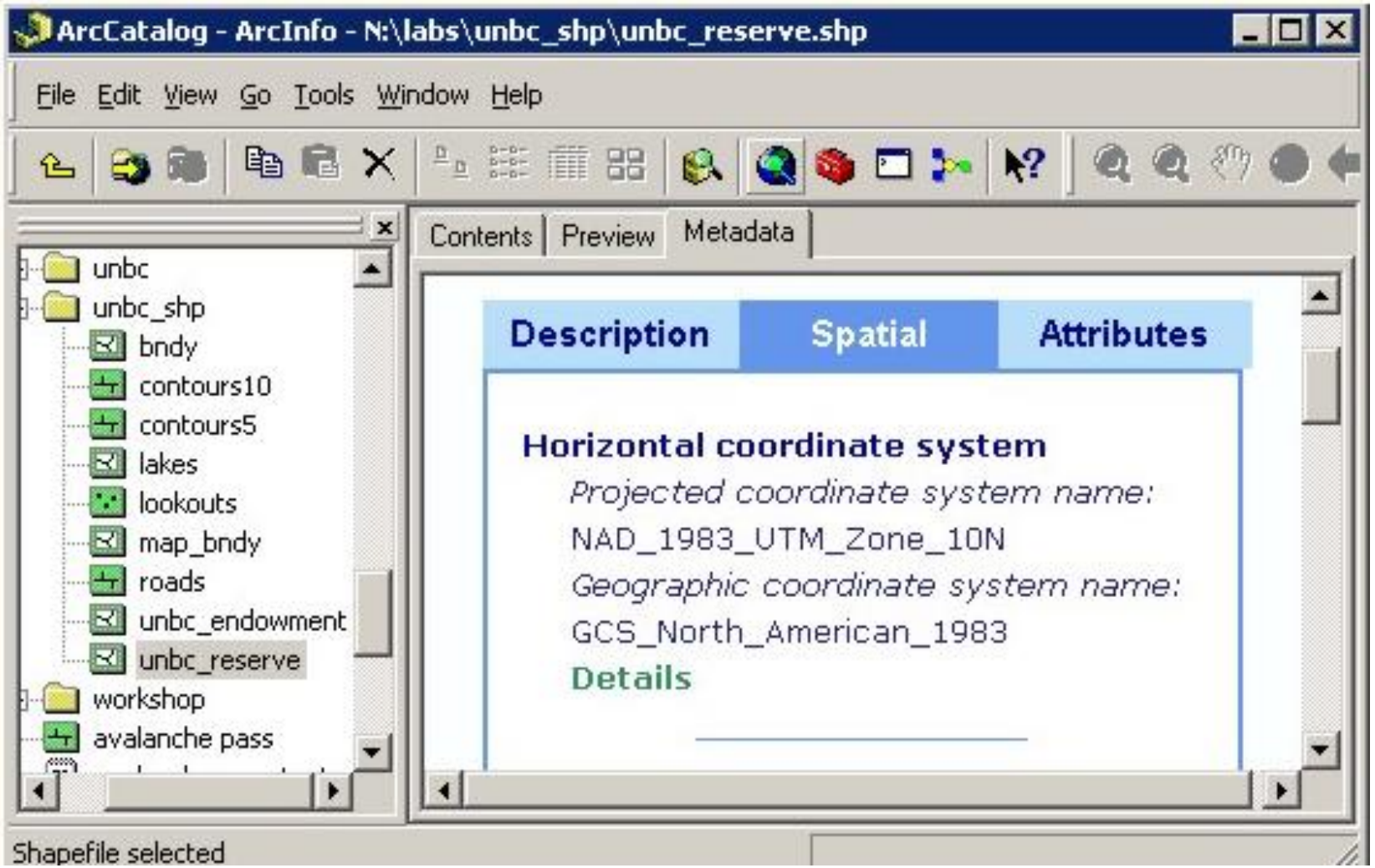
Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES, from aerial photographs taken in 1980. Culture check 1982. Published in 1985.

e.g. 2020 version: Roads updated 2019

Data source: GIS software digital mapping: **'Metadata'**

Metadata = **'data about data'** – how, when, where etc.. (often stored in a text file)

Often do not need all these details – GIS error #3



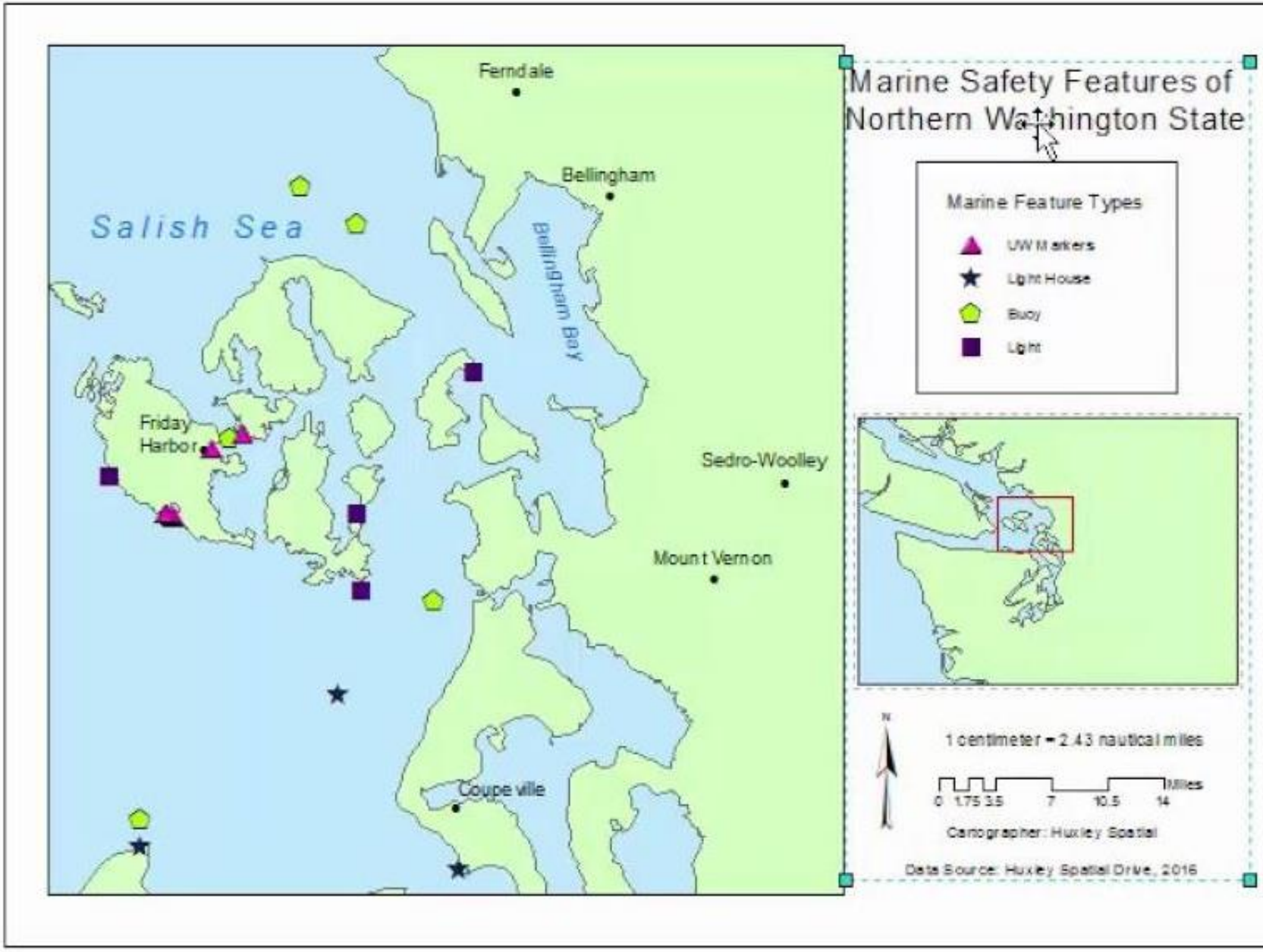
7. Location

a. Direction / distance indicators (e.g. x kms to Edmonton)

b. Locator maps, including scale of locator /inset

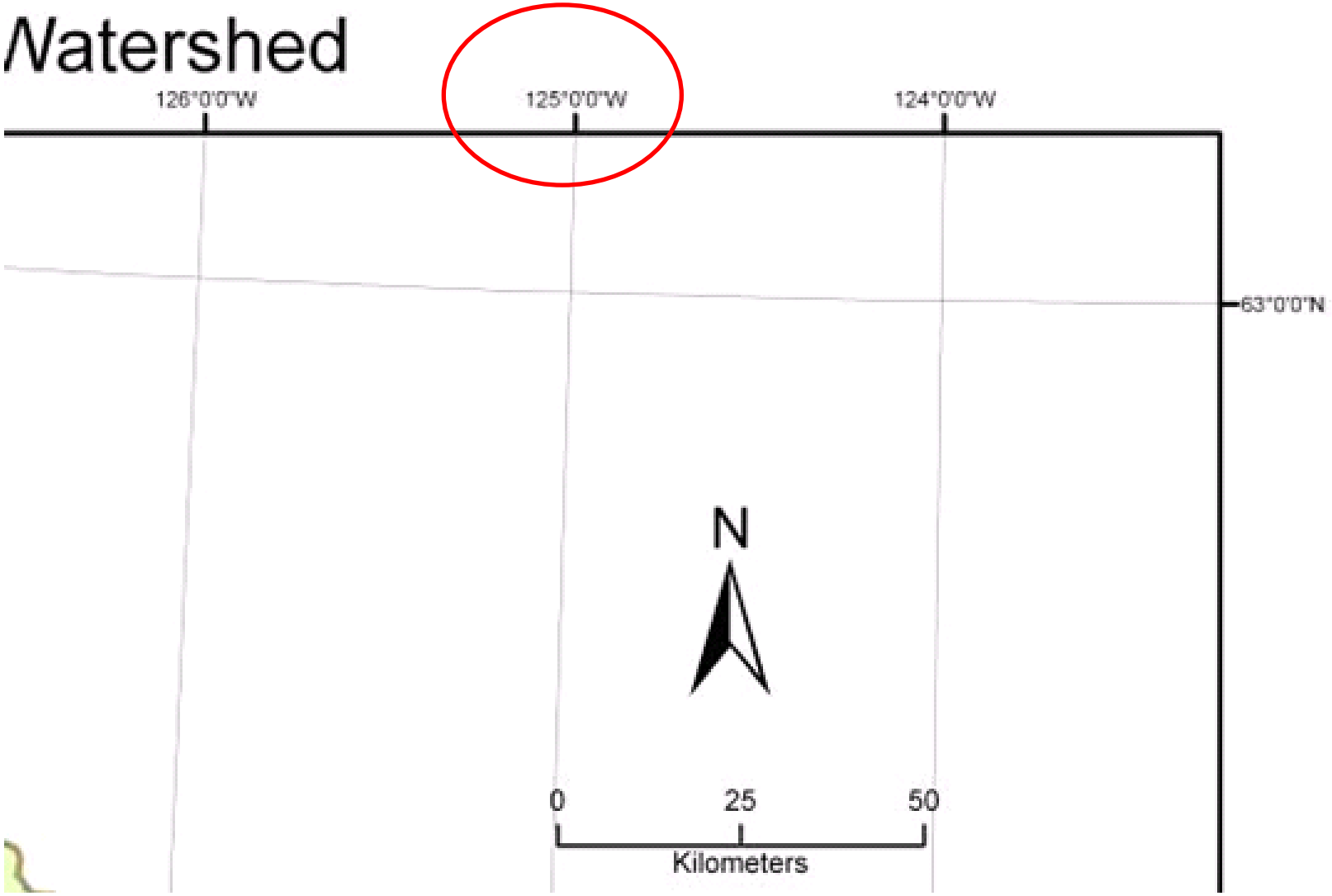
c. Grids showing latitude and longitude

Locator map


Ferndale
Bellingham
Salish Sea
Bellingham Bay
Friday Harbor
Sedro-Woolley
Mount Vernon
Coupeville
Marine Safety Features of Northern Washington State
Marine Feature Types
UW Markers
Light House
Buoy
Light
N
1 centimeter = 2.43 nautical miles
Miles
0 1.75 3.5 7 10.5 14
Cartographer: Huxley Spatial
Data Source: Huxley Spatial Drive, 2016

Grid labels: common ArcGIS error #3

software default: silly graticule precision



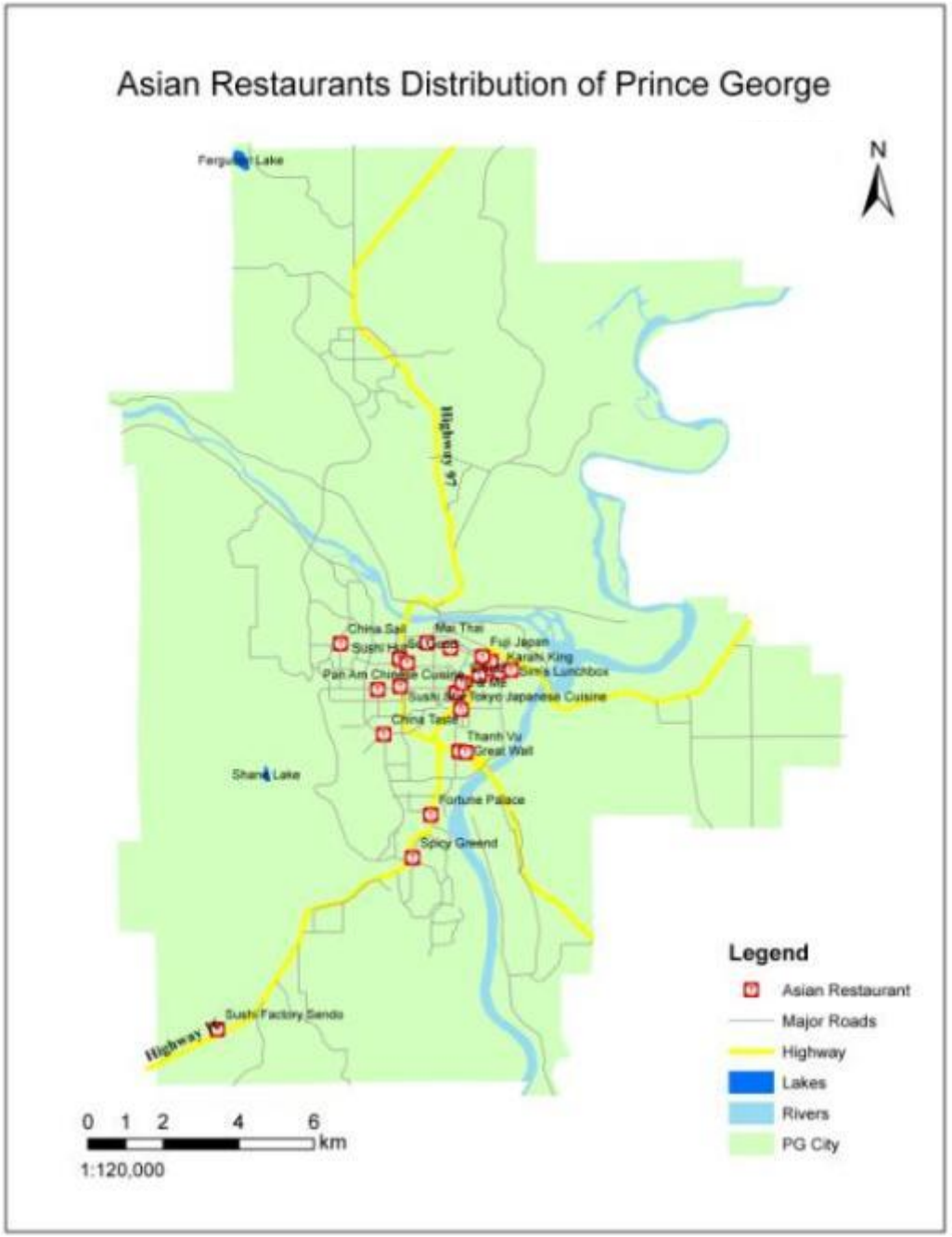
8. Graphic Design/Layout

Optional 'neatline' around the map as a whole and/or the legend

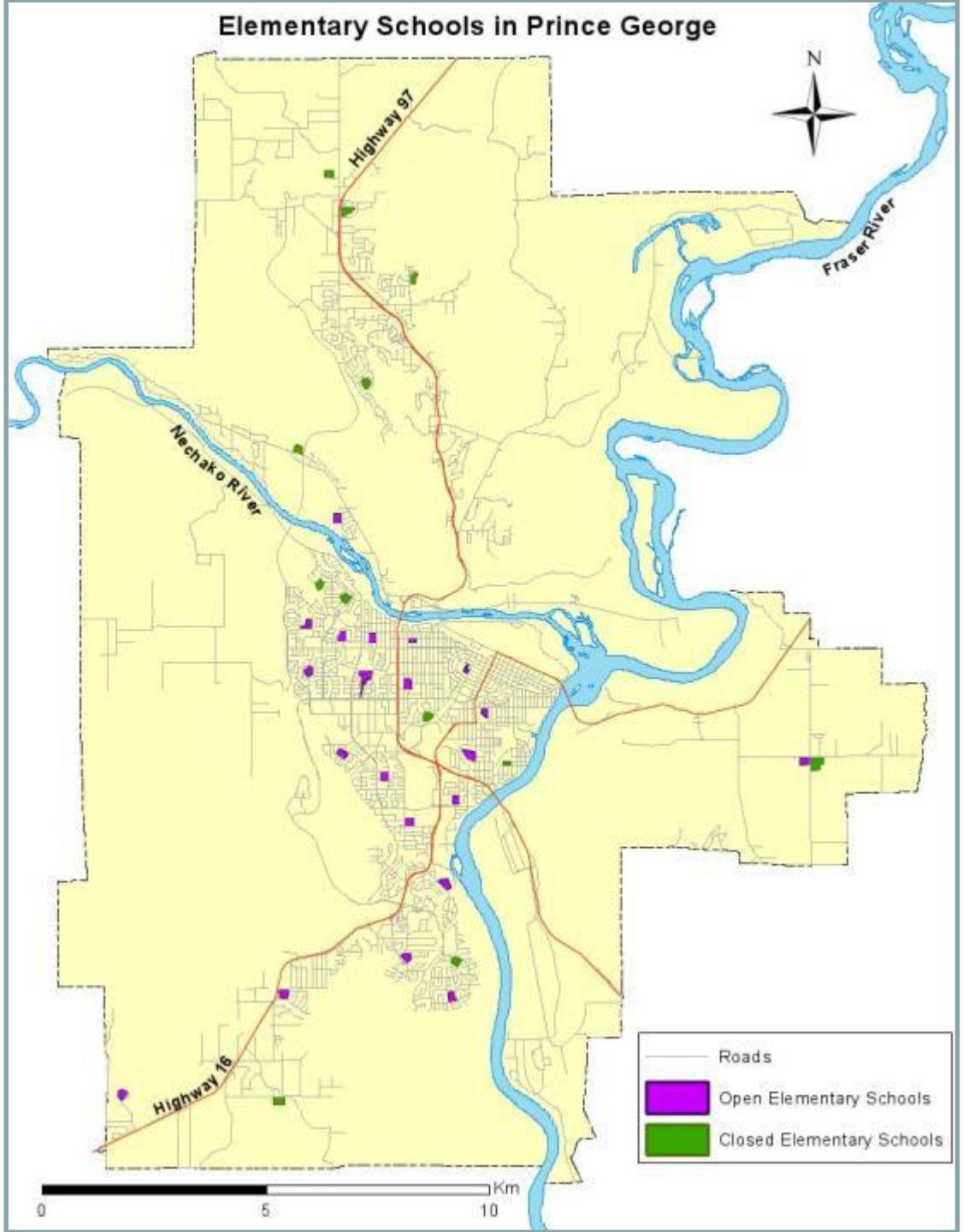
Use space wisely –don't waste white space

Maximise map content space – use white area for ancillary info

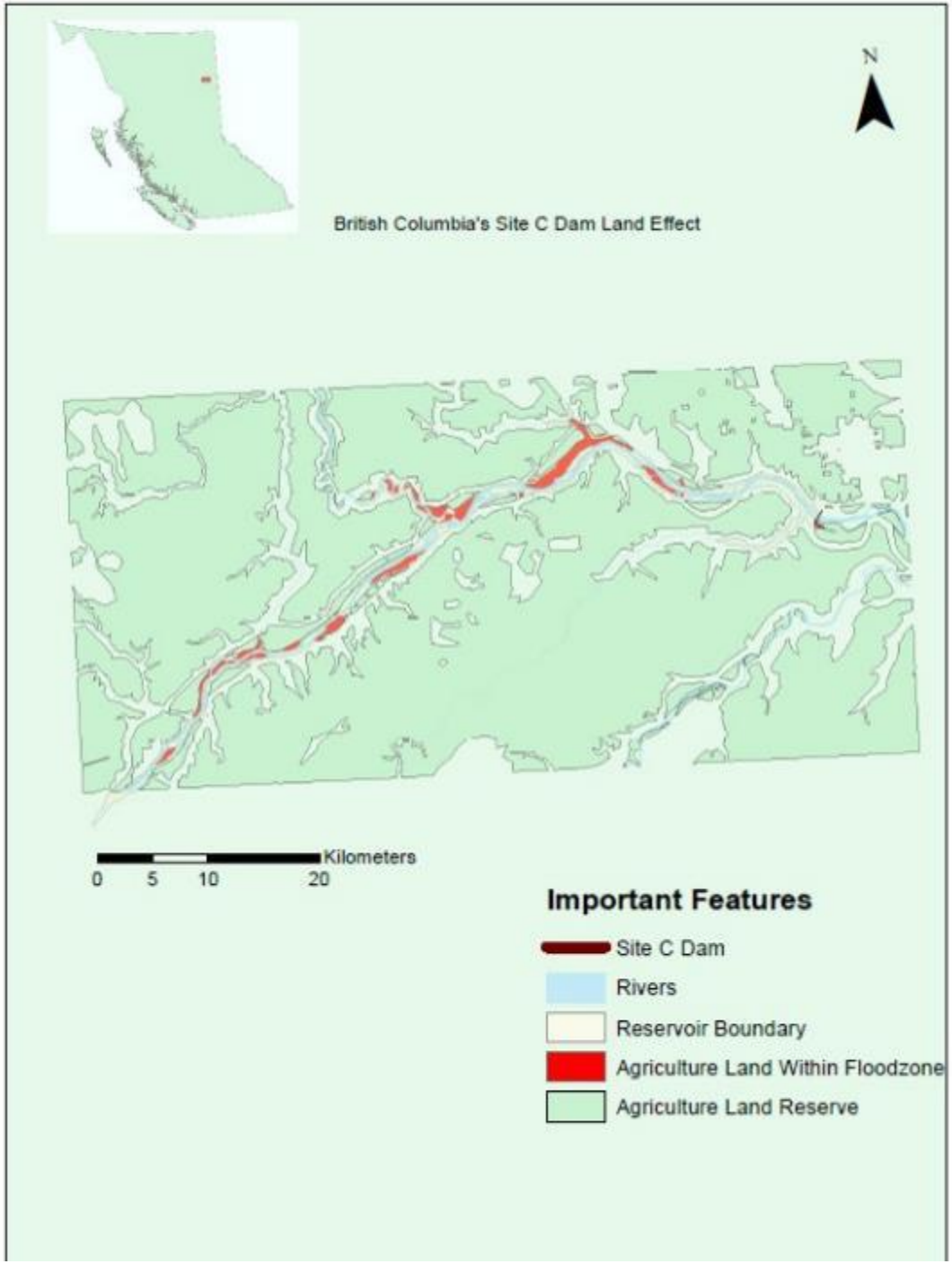
This map could be bigger and fill the box



This one works …
… better



This could hardly be worse …

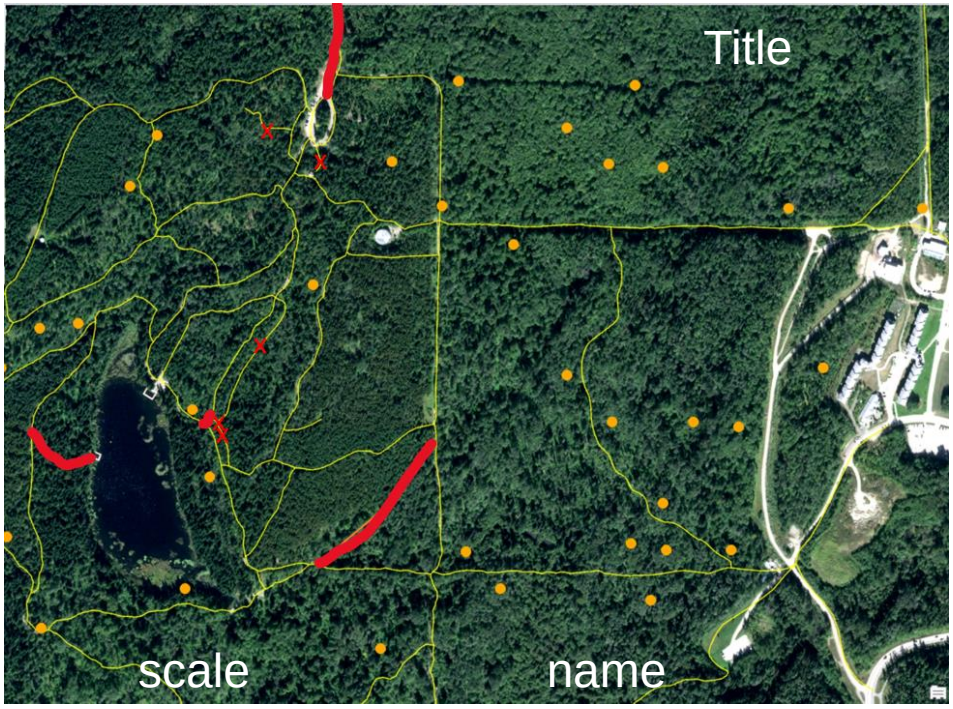


Lab 3 assignment

- should have been landscape ☺ - my Bad!

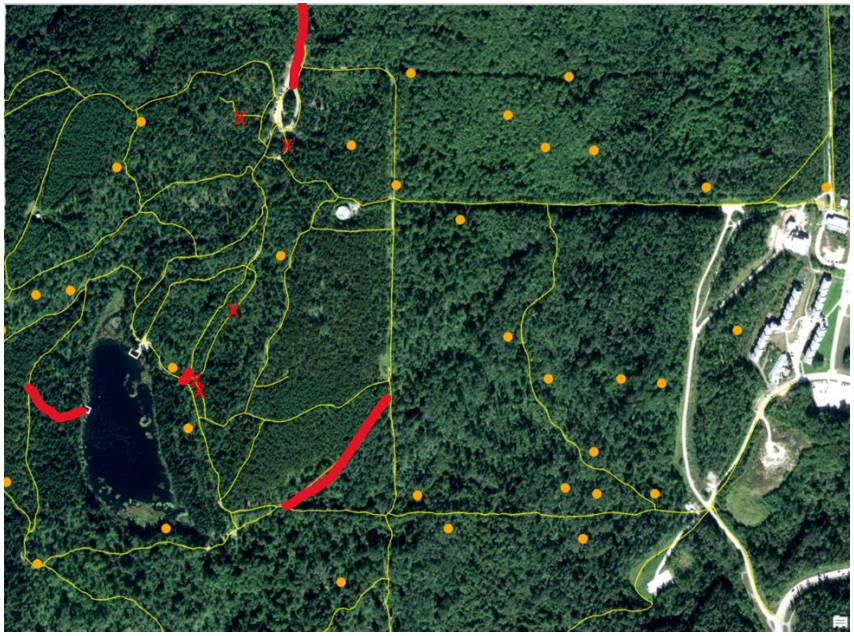
Feel free to use Landscape PDF if you are still editing / in Map View mode

Ancillary information either around map area or in available spaces



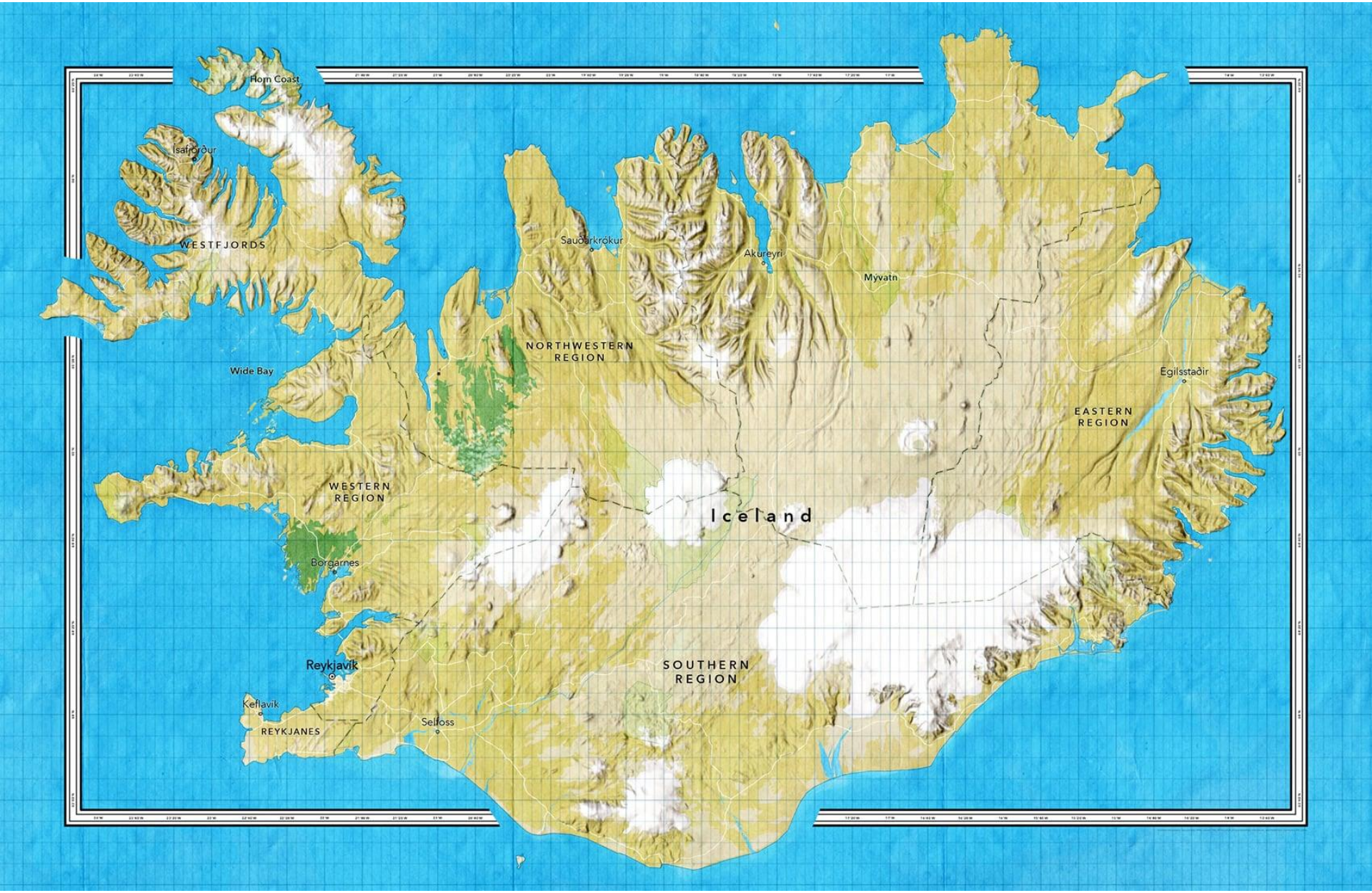
Assignment asks you to make a **Letter Sized Portrait*** map

Dead space

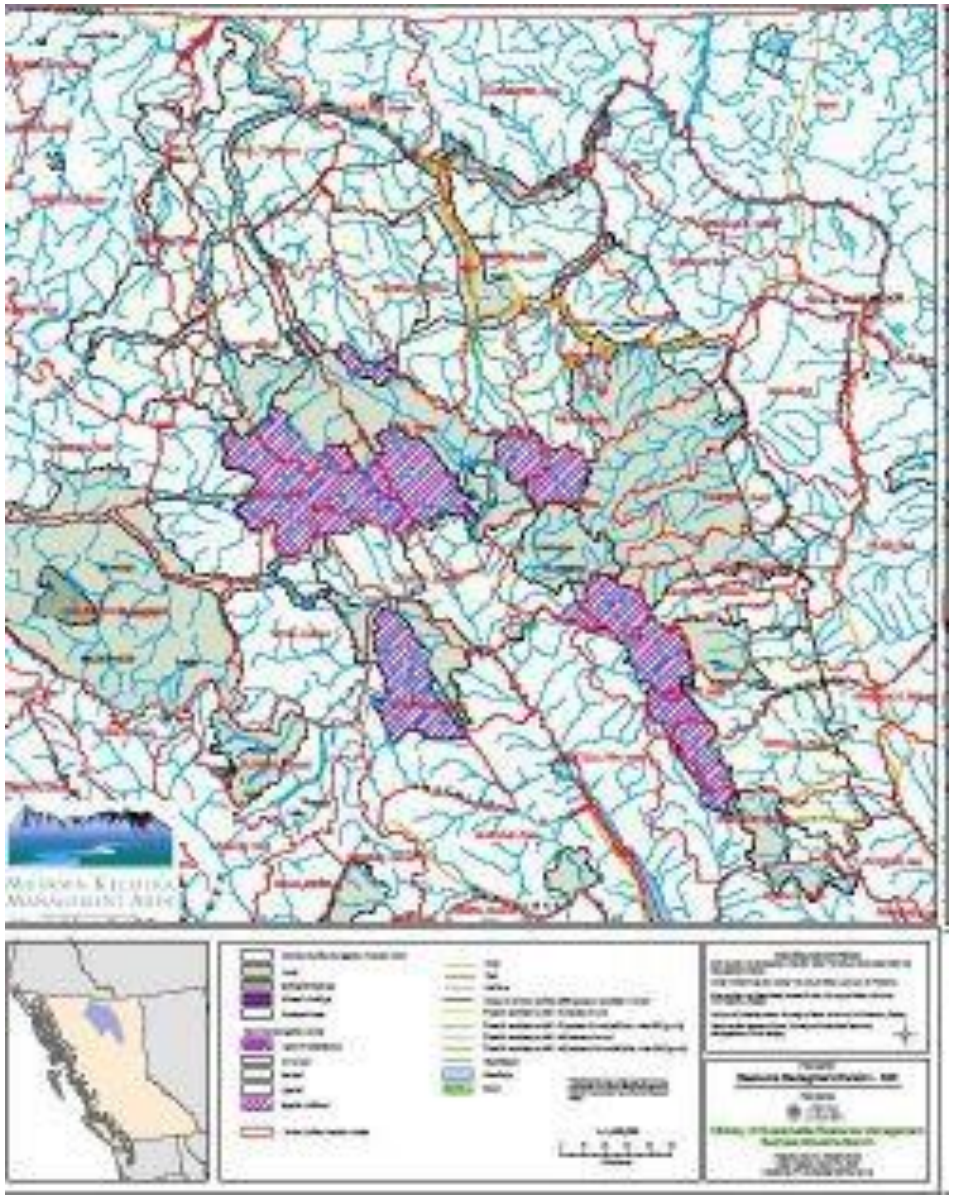


Dead space

Over neatline ‘bleed’ to optimize use of space




BERLIN
West-
Berlin
Ost-
berlin
Spandau
Reinickendorf
Pankow
Weißensee
Lichtenberg
Zehlendorf
Köpenick
Potsdam



Layout

- **Rectangle ~3 x 2 preferred over a square**
- **<u>Landscape</u> v portrait**
- **Letter v tabloid v poster** (if printed)

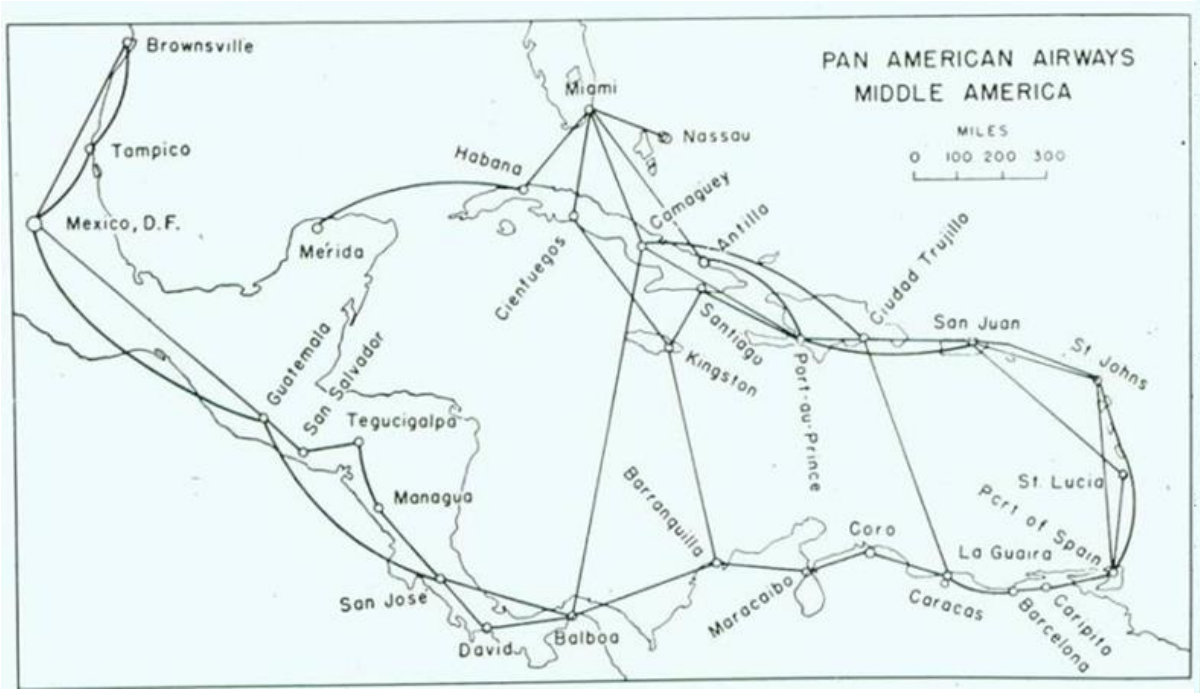
http://www.muskwa-kechika.com

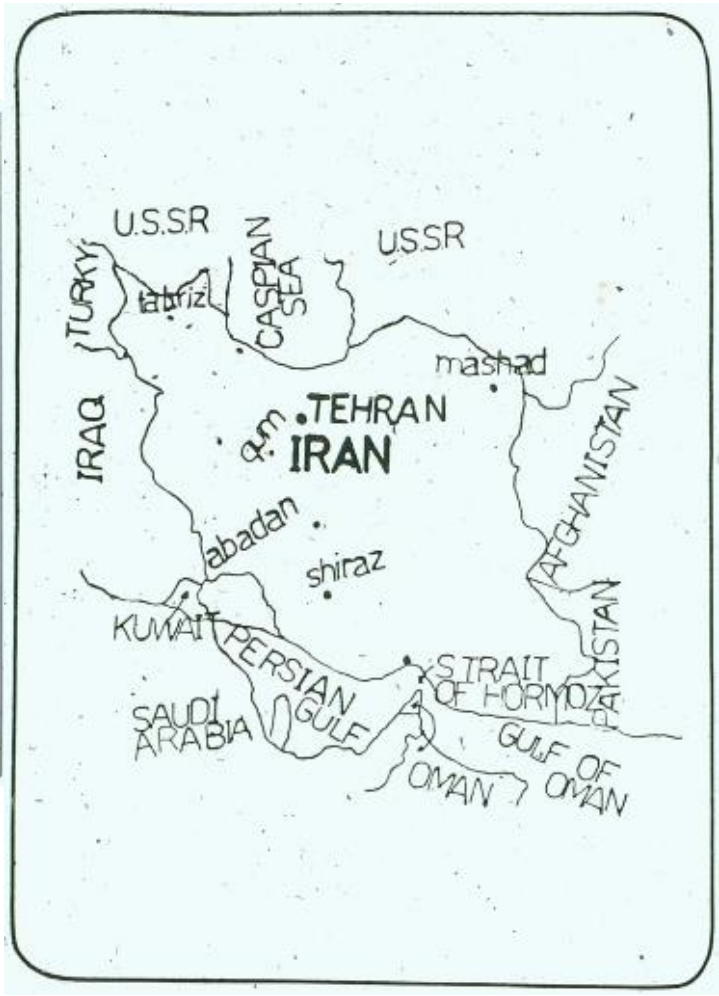
9. VISUAL HIERARCHY: a hierarchy of symbology should be used for the lettering, line weights and shading. More important features are typically larger and/or darker, less important/background information should be smaller and/or lighter. At the same time, do not "over weight" or "under weight" features.

10. **PURPOSE:** All maps have a purpose which should influence every element of the map and the map layout.

https://gis.arizona.edu/sites/default/files/page-attachements/What%20all%20good%20maps%20should%20have.pdf

Absence of visual hierarchy – all layers have similar line weights





Visual levels make map data layers clear

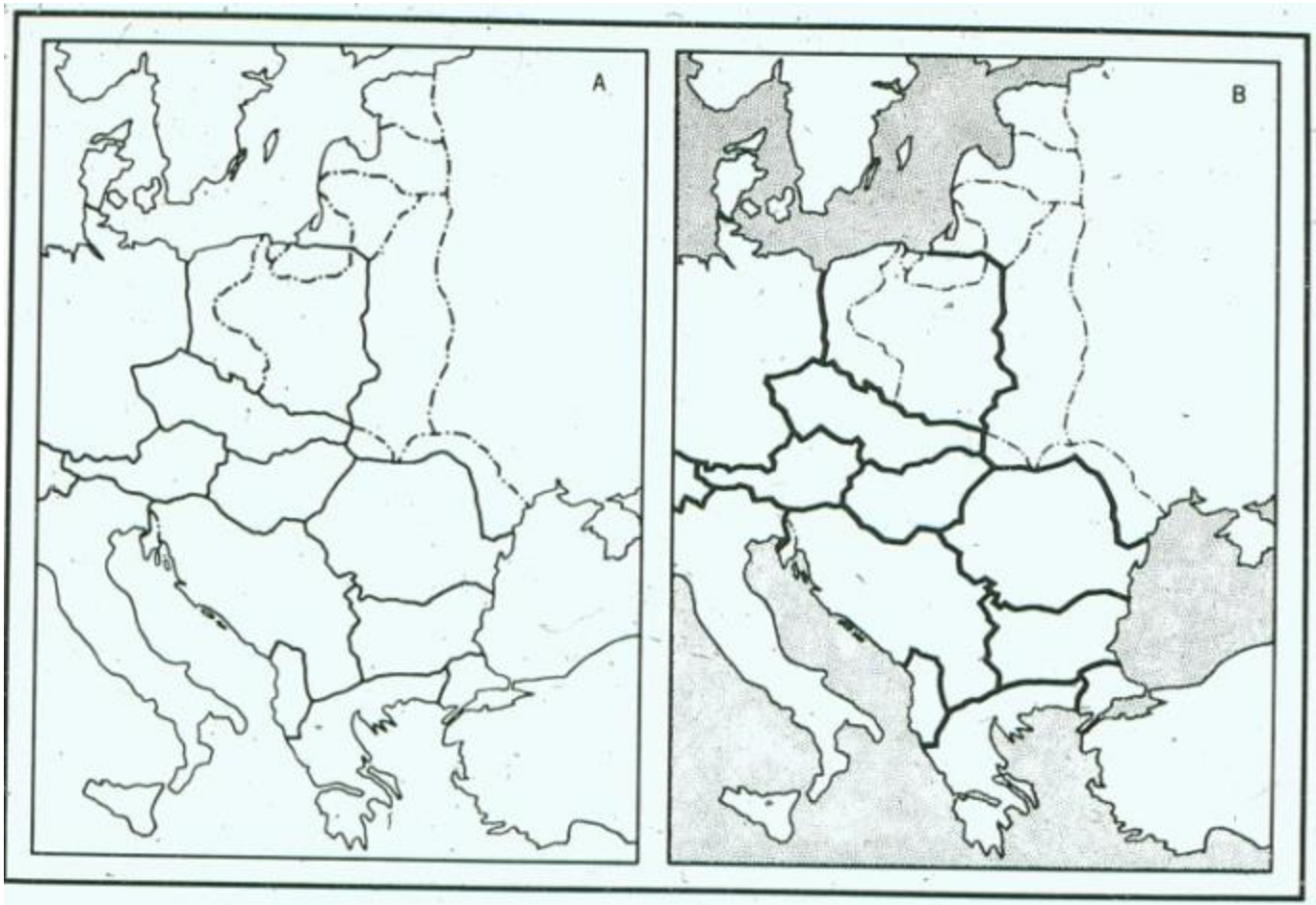
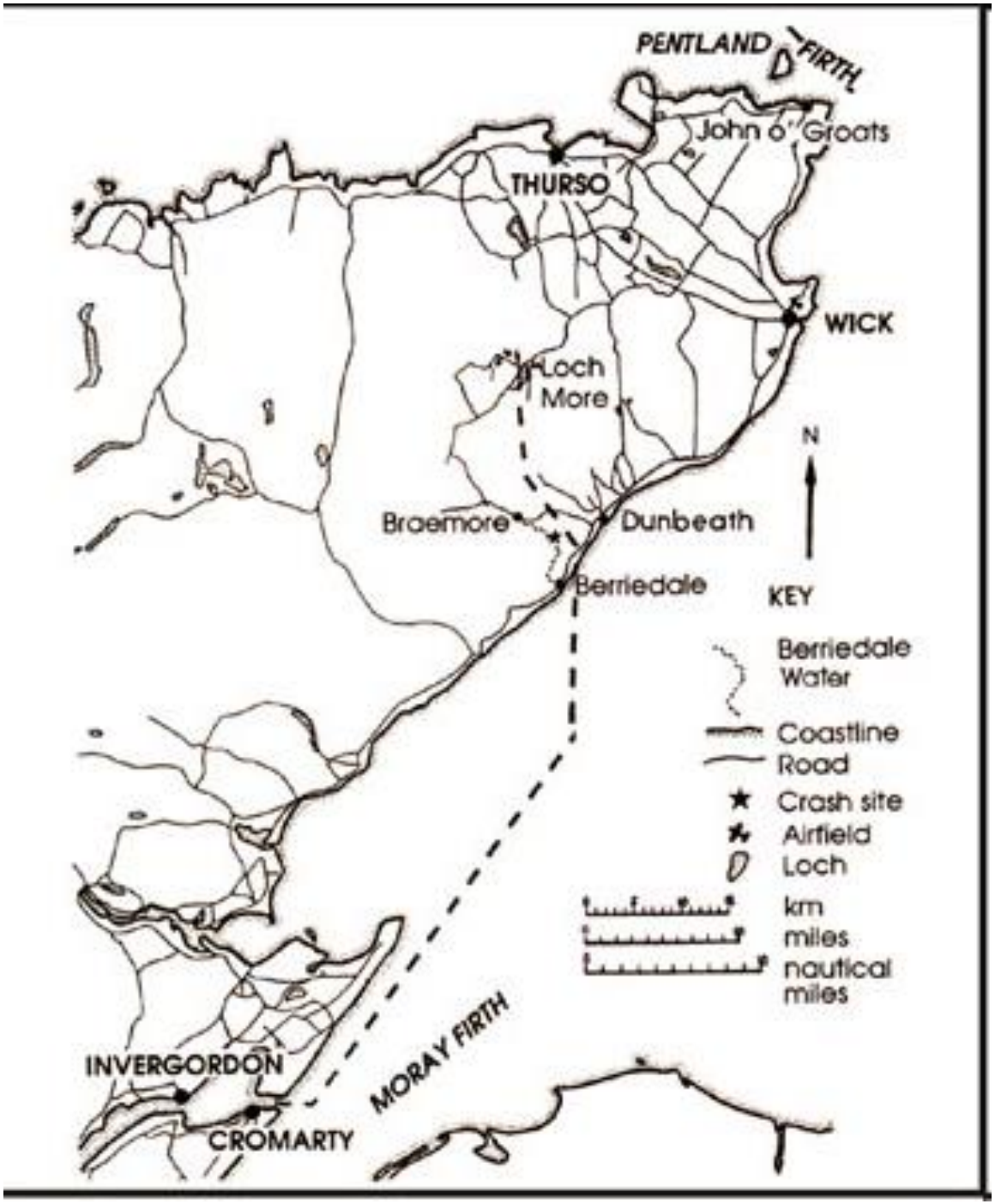


Figure 11.17 All elements in map *A* lie generally in the same visual plane. In map *B* the land has been made to appear above the water, and the more prominent boundaries have been made to rise above the visual plane of the land. Lines of the graticule on the water only would also tend to make the land appear above the water level.



Local interest map:

The plane crash and death of **Prince George**, 1942 (Queen's uncle)

The route of the S-25 Sunderland Mk III on 25th August, 1942

The plane crashed on a hillside due to inability of seaplane to climb

Good design involves:

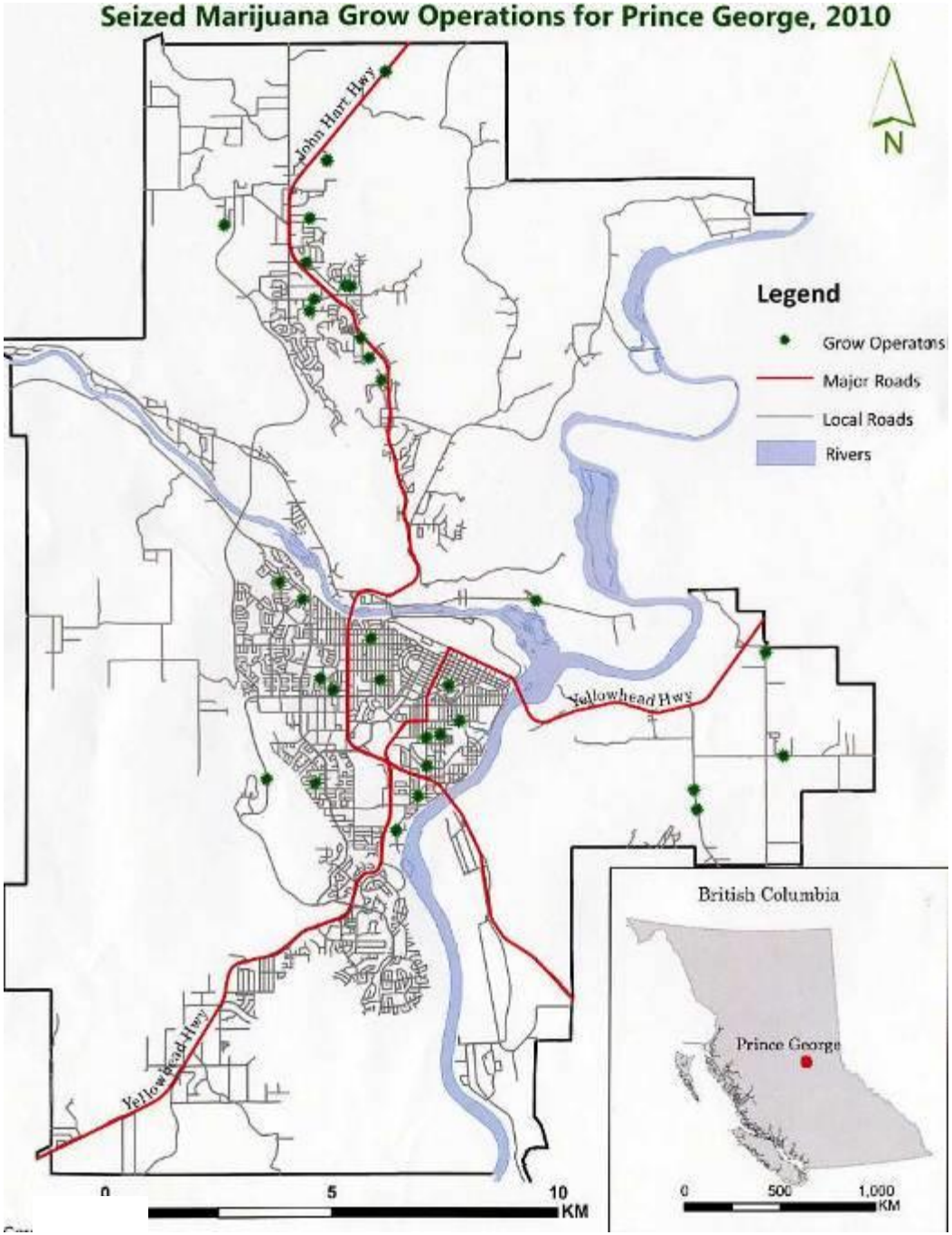
Visual hierarchy of layers and elements:

1. Contrast between map layers

2. Map features visually dominant over ancillary info

3. Thematic layers over base layers

4. Important features dominant (based on map purpose)



Visual levels

- Water (blue) recedes
- Roads (red) advance
- Green points are solid
- Gray recedes

Ancillary map content summary: visual position and prominance

	Item	Best Position
TITLE	what?	Prominent, near top
SCALE	how big?	Near bottom
LEGEND	what (details)?	On side, may be boxed
DIRECTION	which way is up?	Side
LOCATION	where?	Side ticks, or inset
SOURCE	where from?	Very bottom, inconspicuous
LAYOUT	Shape and space	Visual Balance, Neatline etc

Summary of main ancillary info errors

- Too much white space, maximise map content

- Fit ancillary in the spaces, extra panel only if needed

- Scale Bar – avoid silly subdivisions and numbers

- Coordinate ticks – remove false precision

- Legend – remove unneeded layers from legend

- Ancillary information too prominent, should be smaller