

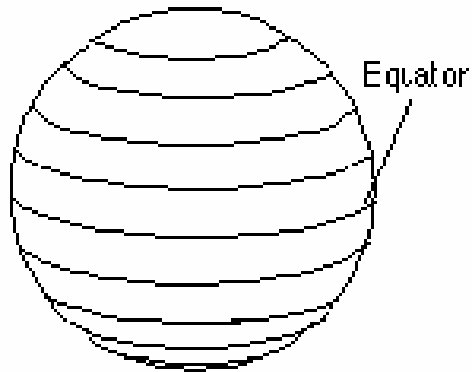
Precisión – Incertidumbre

Causas:

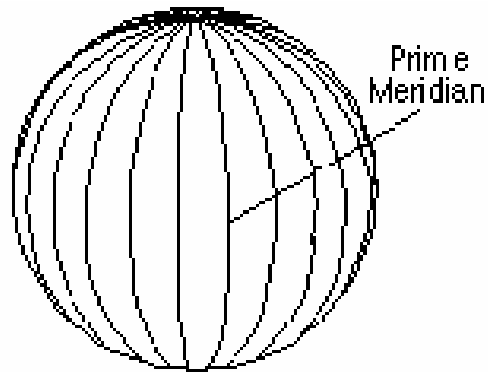
- Referencia original
 - Extensión (no siempre implica incertidumbre)
 - Precisión en distancias, direcciones
- Proceso de georreferenciación
 - Escala (o precisión GPS)
 - Datum

Falsa precisión (p.ej.: UTM en metros)

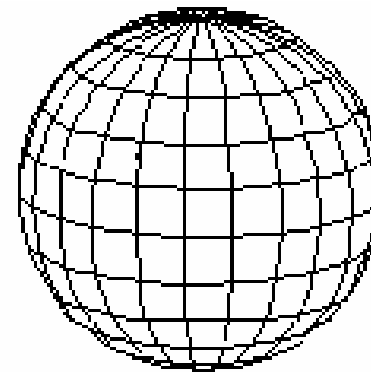
Georeferencing Using MaNIS/HerpNET/ORNIS Guidelines



Parallels of
Latitude



Meridians of
Longitude



Graticular
Network

MaNIS/HerpNET/ORNIS (MHO) Guidelines

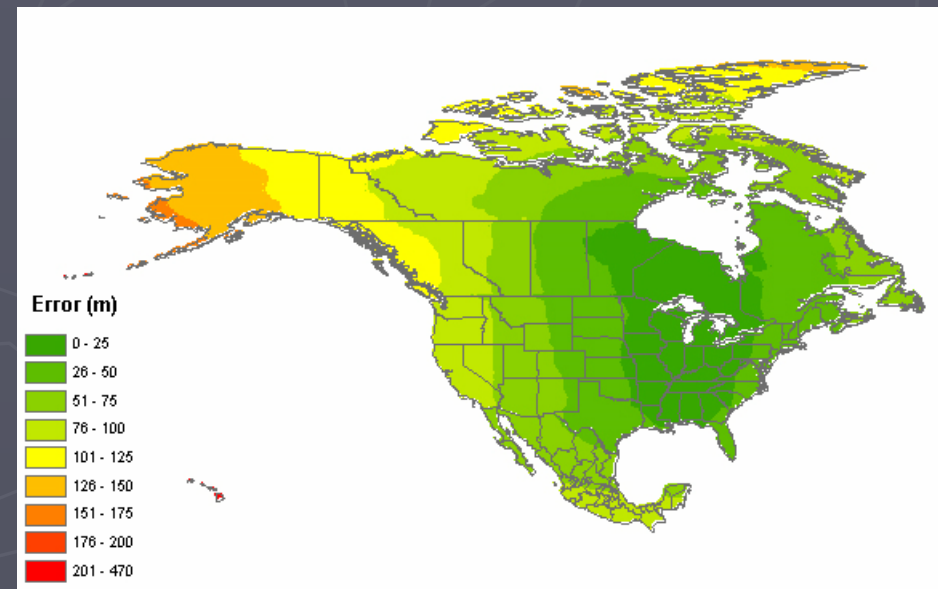
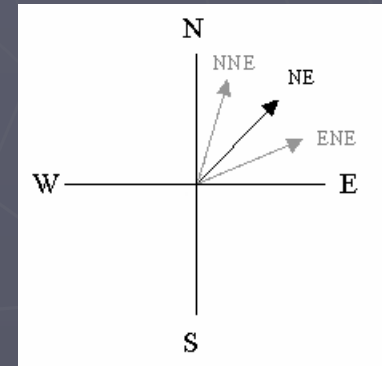
<http://manisnet.org/GeorefGuide.html>

- ▶ The “point-radius” method of georeferencing
- ▶ Uses the coordinate (point) of the center of a place, and an uncertainty (“error”) around it to account for extent of the named place, uncertainty of direction and distance, datum used, etc.
- ▶ We assume that the point and radius will contain the actual collection locality
- ▶ Purpose behind these methods is to provide assumptions that will produce consistent results that can be replicated, to enhance the value of specimen collections, and to design a “paradigm that could be easily adopted by other disciplines with similar needs.”

Causes of uncertainty:

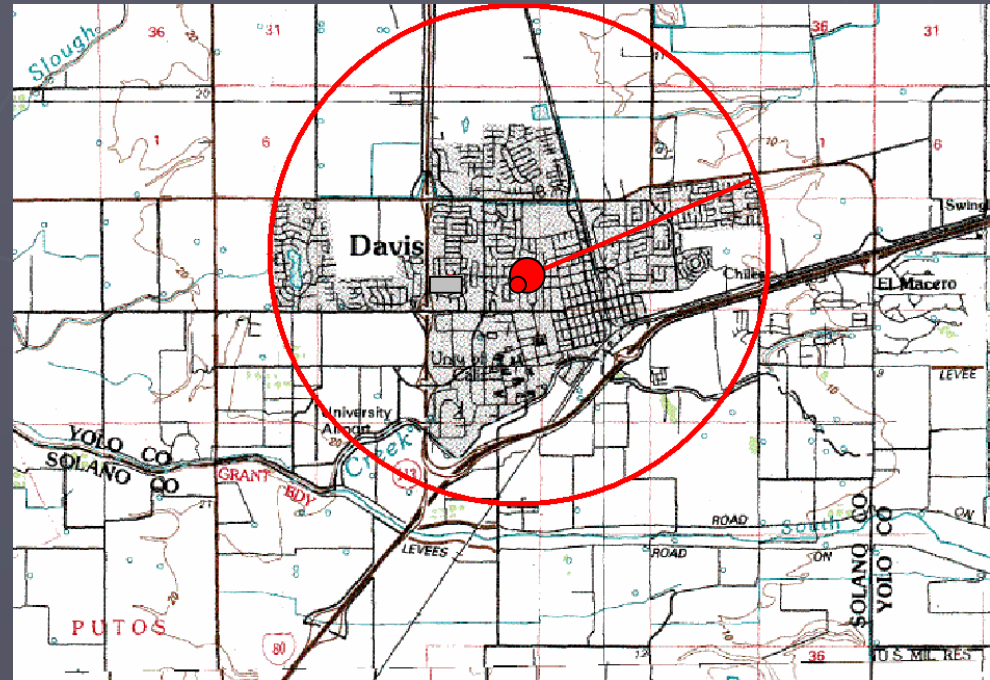
- ▶ Map scale →
- ▶ The extent of the locality
- ▶ GPS accuracy
- ▶ Unknown datum (results in >100 m) →
- ▶ Imprecision in distance measurements
- ▶ Imprecision in direction measurements

Scale	Uncertainty (ft)	Uncertainty (m)
1:1200	3.3 ft	1.0 m
1:2400	6.7 ft	2.0 m
1:4800	13.3 ft	4.1 m
1:10,000	27.8 ft	8.5 m
1:12,000	33.3 ft	10.2 m
1:24,000	40.0 ft	12.2 m
1:25,000	41.8 ft	12.8 m
1:63,360	106 ft	32.2 m
1:100,000	167 ft	50.9 m
1:250,000	417 ft	127 m



Extents:

- ▶ Extent: the geographic range, magnitude or distance that a location may actually represent. (With a town, the extent is the polygon that encompasses the area inside the town's boundaries.)
- ▶ Linear extent- what we use for the Point-Radius Method. Defined as the distance from the geographic center of the location to the furthest point of the geographic extent of the location.



Precision and Accuracy:

- ▶ Always use as many decimal places as given by the coordinate source.
- ▶ A measurement in decimal degrees give to five decimal places is more precise than a measurement in degrees minutes seconds.
- ▶ False precision will result if data are recorded with a greater number of decimal points (e.g. when converting from DMS to decimal degrees).
- ▶ Always record the accuracy of your GPS readings (how well the GPS measures the true value of the location). The accuracy is given at the same time as the coordinate, but usually will not be recorded with the coordinates when you output them on most GPS units.

MHO Guidelines

- ▶ If more information is known about a locality and the georeferencer wants to use this information, then state any assumptions made in the “LatLong Remarks” field of your database
- ▶ Document the georeferencing rationale for each record (by using MHO guidelines exactly or document differences in “Latlong remarks”).
- ▶ Always state your assumptions.
- ▶ Think of georeferencing as “many-stepped process” – this is a first pass. Then you can go back to do more refining and verification of the records using itineraries, field notes, collector verification and by mapping the localities and making these maps available on-line.

Georeferencing Error Calculator

Version 060123

Georeferencing Calculator

Calculation Type

Locality Type

Step 3) Enter all of the parameters for the locality.

Coordinate Source

Coordinate System

Latitude

Longitude

Datum

Coordinate Precision

Offset Distance

Extent of Named Place

Distance Units

Distance Precision

Direction

Decimal Latitude	Decimal Longitude	Maximum Error Distance	
<input type="text" value="30.14518"/>	<input type="text" value="-110.00000"/>	<input type="text" value="15.191"/>	<input type="text" value="mi"/>

[Georeferencing Calculator Manual](#)

[Georeferencing Guidelines](#)

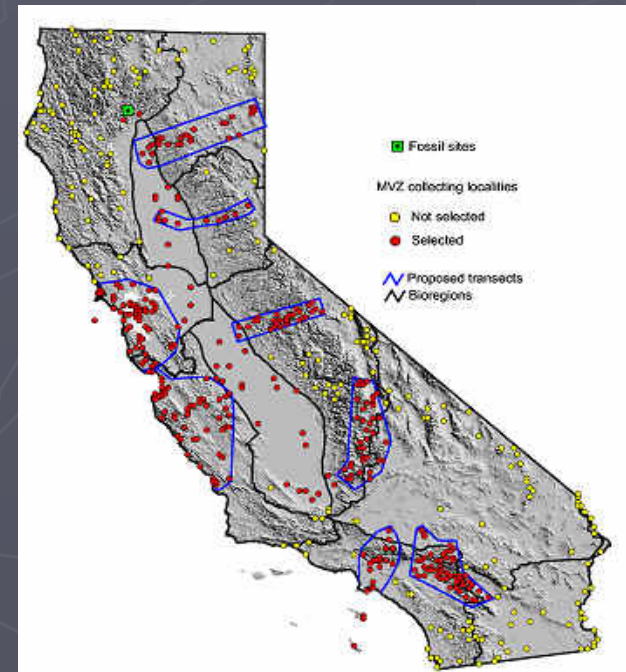
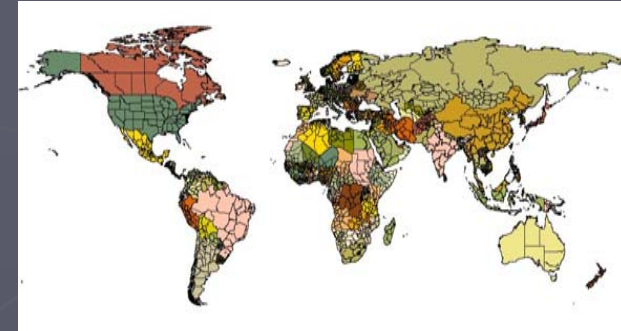
This application was originally written by John Wieczorek. Later versions benefitted from contributions from Qinghua Guo, Carr

John Wieczorek 3 Nov 2001

Rev. 21 Jan 2006, JRW

Acknowledgements:

- ▶ MaNIS/HerpNET/ORNIS Georeferencing Guidelines
- ▶ Guide to Best Practices in Georeferencing, edited by Arthur Chapman and John Wieczorek, 2006
- ▶ “The point radius method for georeferencing locality descriptions and calculating associated uncertainty” by John Wieczorek, et al., 2004. Available at (#9) <http://herpnet.org/documents.html>
- ▶ Figures from MHO Guidelines, Terrain Navigator, Geographer’s Craft, Robert Hijmans and Carla Cicero



Referencias geográficas

- Nominales
- Numerales (coordenadas, precisión)
 - Mapas en papel

Ejercicios 2

