



# Wikipedia maps

## *Integrating OpenStreetMap*

Project team: Ævar Arnfjörð Bjarmason, Christian Becker, Jens Frank, Daniel Kinzler, Sven Anders, Tim Alder, Tim Bartel, Aude, and others.

<http://meta.wikimedia.org/wiki/OpenStreetMap>

# Maps on Wikipedia

Approximately 25% of articles on Wikipedia have or could use a map

- Place articles need locator maps (20%)

Biography (29%)

Places (20%)

Culture (19%)

Species (6%)

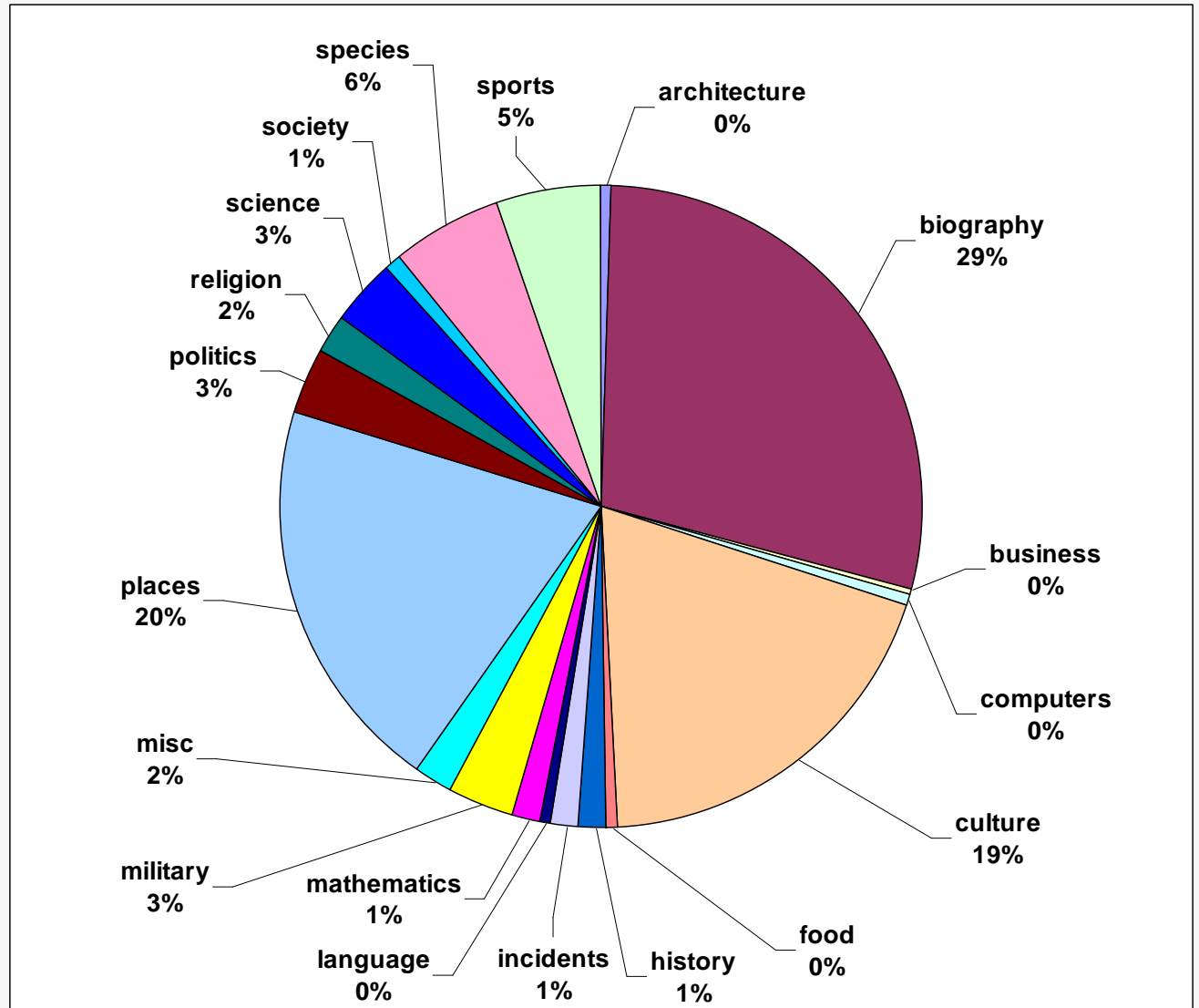
Sports (5%)

Science (3%)

Politics (3%)

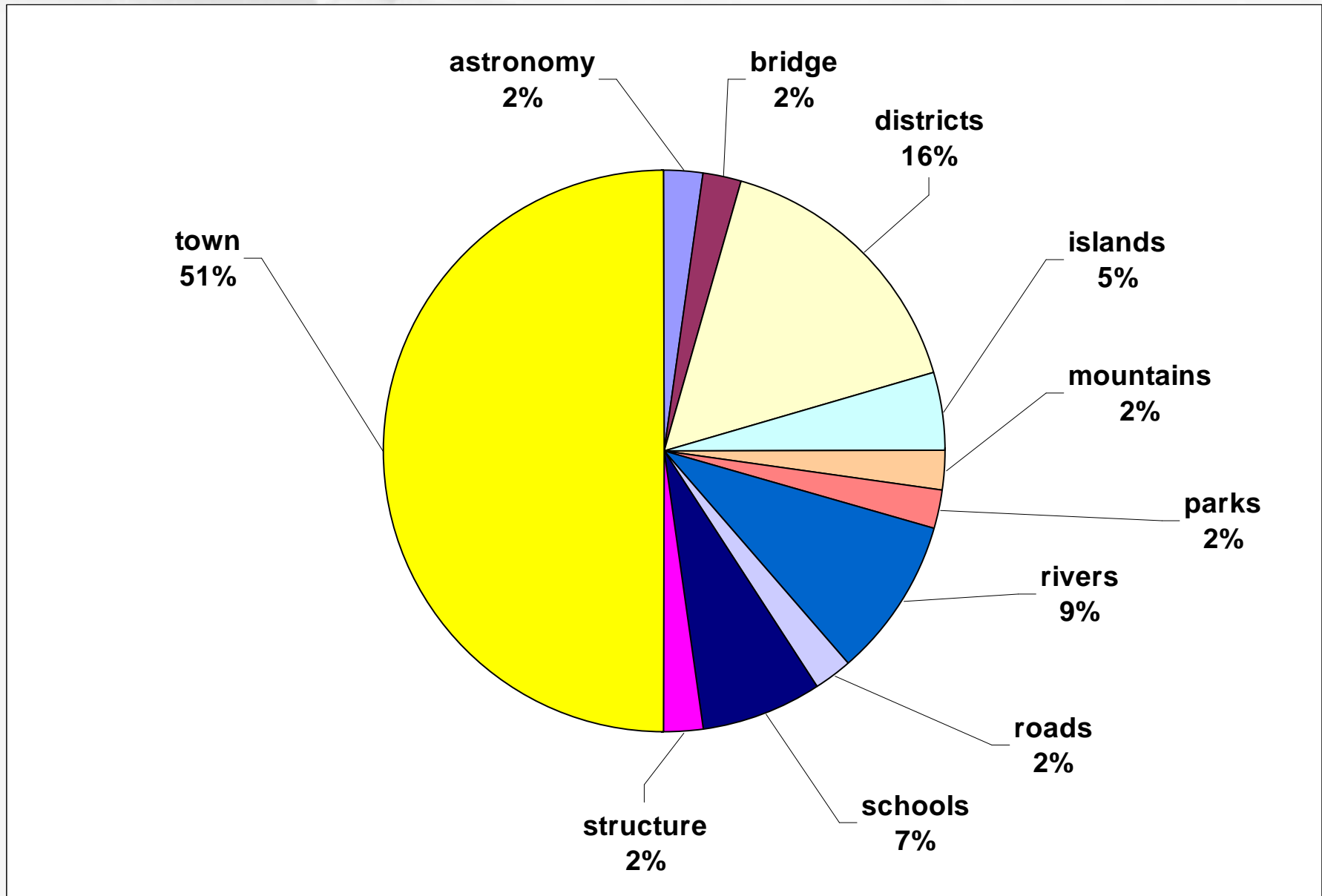
Military (3%)

Other ...




Survey of 250 English Wikipedia articles, via Special:Random

# Wikipedia places



Survey of 250 English Wikipedia articles, via Special:Random

# Locator maps



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## Fenwick, Connecticut

From Wikipedia, the free encyclopedia

Coordinates: 41°16′15″N 72°21′13″W﻿ / ﻿41.27083°N 72.35361°W﻿ / 41.27083; -72.35361


**Fenwick** is a borough in [Middlesex County, Connecticut](#), United States, in the town of [Old Saybrook](#). The population was 52 at the 2000 census, making it the least populous municipality in Connecticut. It is considered one of the most prestigious summer colonies in the country.

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- Description
- Geography
- Demographics
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### Description

[edit]



This section **does not cite any references or sources**. Please help [improve this article](#) by adding citations to [reliable sources](#). Unsourced material may be challenged and [removed](#). *(January 2009)*


Fenwick is set apart from the town of Old Saybrook by a large cove over a causeway. It is located exactly where the Connecticut River meets the Long Island Sound. Most residents are related, and there is a strong sense of family bonds that have existed since the 1600s. Fenwick was the lifelong home to actress [Katharine Hepburn](#) until she died on June 29, 2003 at the age of 96. Actress [Rosemary Murphy](#), [New York City](#) mayor [John Lindsay](#), and several members of the [Whitney family](#) have also lived there at one time or another.

Fenwick has two lighthouses, the [Inner](#) and the [Outer](#). The Inner is at the tip of Lynde Point, Fenwick's peninsula, and the Outer is a quarter mile off shore, connected by a rough jetty. The Outer Light is the lighthouse shown on many Connecticut license plates.

There is a single public beach about a quarter of a mile away from the lighthouse. The beach is open weekdays, weekends, and some holidays. There are lifeguards there until 5:00 on all days.

Fenwick also contains a public 9 hole golf course, public clay tennis courts, and a boating club.

### Fenwick, Connecticut



Location within the state of Connecticut  
Coordinates: 41°16′12″N 72°21′26″W﻿ / ﻿41.27000°N 72.35722°W﻿ / 41.27000; -72.35722

<b>Country</b>	United States
<b>State</b>	Connecticut
<b>Area</b>	
<span> </span> - <b>Total</b>	0.4 sq mi (1.1 km <sup>2</sup> )
<span> </span> - <b>Land</b>	0.4 sq mi (1.1 km <sup>2</sup> )
<span> </span> - <b>Water</b>	0.0 sq mi (0.0 km <sup>2</sup> )
<b>Elevation</b>	30 ft (9 m)
<b>Population</b> (2000)	
<span> </span> - <b>Total</b>	52
<span> </span> - <b>Density</b>	121.9/sq mi (47.1/km <sup>2</sup> )
<b>Time zone</b>	Eastern (EST) (UTC-5)
<span> </span> - <b>Summer (DST)</b>	EDT (UTC-4)
<b>ZIP code</b>	06475



# Thematic maps



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## Northern Bald Ibis

From Wikipedia, the free encyclopedia

The **Northern Bald Ibis**, **Hermit Ibis**, or **Waldrapp** (*Geronticus eremita*) is a bird found in barren, semi-desert or rocky habitats, often close to running water, although unlike other ibises it does not wade. This 70–80 cm (28–31 in) glossy black ibis has an unfeathered red face and head, and a long, curved red bill. It breeds colonially on coastal or mountain cliff ledges, where it lays 2–3 eggs in a stick nest, and feeds on lizards, insects, and other small animals.

The Northern Bald Ibis was once widespread across the Middle East, northern Africa and southern Europe, with a fossil record dating back at least 1.8 million years. It disappeared from Europe over 300 years ago, and is now **critically endangered**: there are only around 500 wild birds in southern Morocco, and fewer than ten in Syria, where it was rediscovered in 2002. The reasons for its long-term decline are unclear, but hunting, loss of foraging habitat, and pesticide poisoning have been implicated in the rapid loss of colonies in recent decades.

This ibis was **migratory**, wintering well south of its breeding areas, although the current wild Moroccan population is resident year-round. This species is common in zoos, and there are reintroduction schemes at a semi-wild breeding colony in Turkey, and at sites in Austria, Spain and northern Morocco.

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- Taxonomy
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  - Wild populations
  - Turkey
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    - Zoo populations
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### Northern Bald Ibis



Adult

### Conservation status

 Critically Endangered (IUCN 3.1)<sup>[1]</sup>

### Scientific classification

Kingdom: [Animalia](#)

[http://en.wikipedia.org/wiki/Northern Bald Ibis](http://en.wikipedia.org/wiki/Northern_Bald_Ibis) (CC-BY-SA 3.0)



# Thematic maps

## Habitat and range

[edit]

Unlike other ibises, which nest in trees and feed in wetlands, the Northern Bald Ibis breeds on undisturbed cliff ledges, and forages for food in irregularly cultivated, grazed dry areas such as semi-arid **steppes**, and fallow fields. The close proximity of adequate steppe feeding areas to breeding cliffs is an important habitat requirement.<sup>[22]</sup>



Near Oued Tamri, Morocco

The Northern Bald Ibis was once widespread across the Middle East, northern Africa, and southern Europe; it bred along the **Danube** and **Rhone** Rivers, and in the mountains of Spain, Italy, Germany, Austria, and Switzerland (Gessner's original description was of a Swiss bird).<sup>[23]</sup> It used castle battlements as well as cliff ledges for nesting before vanishing from Europe at least three centuries ago.<sup>[3]</sup> It is also extinct over most of its former range, and now almost the entirety of the wild breeding population of just over 500 birds is in Morocco, at **Souss-Massa National Park**, where there are three documented colonies, and near the mouth of the **Oued Tamri** (north of **Agadir**), where there is a single colony containing almost half the Moroccan breeding population. There is some movement of birds between these two sites.<sup>[1]</sup>

Religious traditions helped this species to survive in one Turkish colony long after the species had disappeared from Europe, since it was believed that the ibis **migrated** each year to guide **Hajj** pilgrims to **Mecca**. The ibis was protected by its religious significance, and a festival was held annually to celebrate its return north.<sup>[24]</sup> The Turkish ibis population was centred near the small town of **Birecik** in the south east of the country, and during the first half of the twentieth century, the Birecik colony maintained a relatively stable population of about 500 breeding pairs, reaching an estimated total population of about 3,000 around 1930. By the 1970s, numbers had drastically declined and a captive breeding program was initiated in 1977 with one adult pair and nine chicks taken from the wild. This program largely failed to revert the decline; there were 400 birds in 1982, five pairs in 1986 and seven pairs in 1987. Only three birds returned from their wintering grounds in 1989, and just one in 1990. The returning birds died before they could reproduce, thus rendering the species extinct in the wild in Turkey as of 1992. Once the wild Turkish population became non-viable, the colony was maintained as a flock which was free-flying for most of the year but caged in autumn to prevent migration.<sup>[25]</sup>



Part of a flock in the Souss Massa stronghold



—Tagged Syrian breeders migrated south through Yemen in 2006 and returned via Eritrea.<sup>[26]</sup>  
—Birds from Birecik visited the Syrian colony at Palmyra.<sup>[27]</sup>

After the demise of the migratory Turkish colony, the Northern Bald Ibis was known to survive in the wild only at the Moroccan sites, although occasional sightings of birds in Yemen, Eritrea, Saudi Arabia and Israel during the 1980s and 1990s suggested that there was still a colony somewhere in the Middle East.<sup>[28]</sup> Intensive field surveys in spring 2002, based on the knowledge of **Bedouin** nomads and local hunters, revealed that the species had never become completely extinct on the Syrian desert steppes. Following systematic searches, 15 old nesting sites were found, one, near **Palmyra**, was still hosting an active breeding colony of seven individuals.<sup>[10][29][30]</sup> Although the ibis had been declared extinct in Syria more than 70 years earlier,<sup>[31]</sup> the bird appears to have been relatively common in the desert areas until 20 years ago, when a combination of overexploitation of its range lands and increasing hunting pressures initiated a dramatic decline.<sup>[29][30]</sup>

The Moroccan breeding birds are resident, dispersing along the coast after the nesting season. It has been suggested that coastal fog provides extra moisture for this population, and enables the ibises to remain year-round.<sup>[1]</sup> In the rest of its former range, away from the Moroccan coastal locations, the Northern Bald Ibis migrated south for the winter, and formerly occurred as a vagrant to Spain, Iraq, Egypt, the **Azores** and **Cape Verde**.<sup>[3]</sup>

Satellite tagging of 13 Syrian birds in 2006 showed that the three adults in the group, plus a fourth untagged adult, wintered together from February to July in the highlands of Ethiopia, where the species had not been recorded for nearly 30 years. They travelled south on the eastern side of the Red Sea via Saudi Arabia and Yemen, and returned north through Sudan and Eritrea.<sup>[26][32]</sup>



# Thematic maps



# Automated maps on Wikipedia

March 2009:

The German Wikimedia chapter announced they would provide funding to purchase three servers to use for integrating OpenStreetMap with Wikipedia.

- Database server to host copy of OSM data
- Rendering server to generate tiles and maps
- Map toolserver for development and experimental projects



# OpenStreetMap

OpenStreetMap

The Free Wiki World Map

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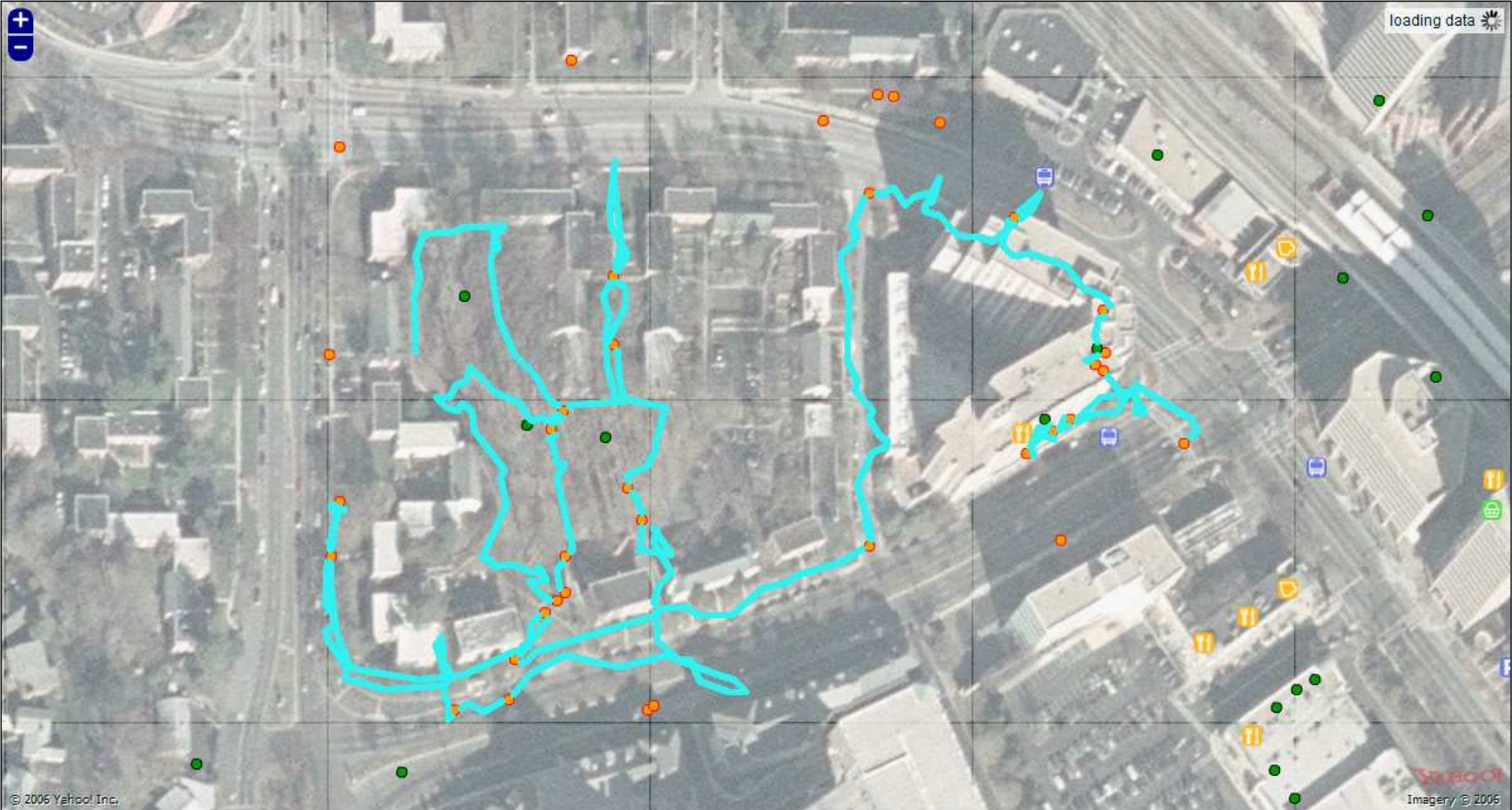
loading data

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examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen'  
more examples...

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Potlatch 1.2 Drag and drop points of interest

	Airport	Bus stop	Ferry	Parking	Rail station	Taxi rank	Bar
	Cafe	Cinema	Fast food	Pub	Restaurant	Theatre	Convenience s
	Hotel	Pharmacy	Postbox	Recycling	Supermarket	Telephone	Fire station
	Hospital	Police station	Place of worsh	Museum	School		

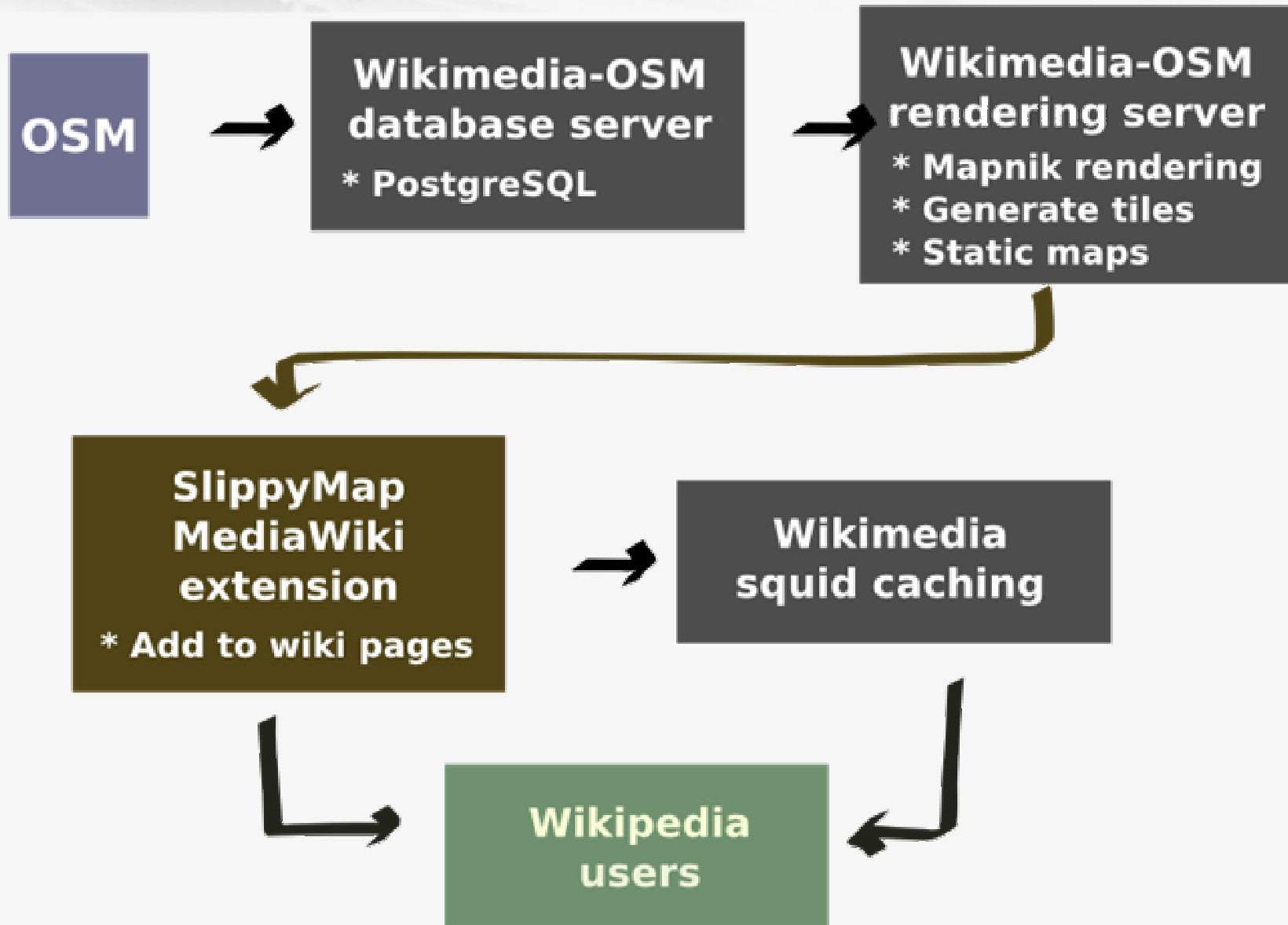
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Editing offline Save

# OpenStreetMap



# Back-end





# Front-end

Slippy Map / Open Layers MediaWiki extension

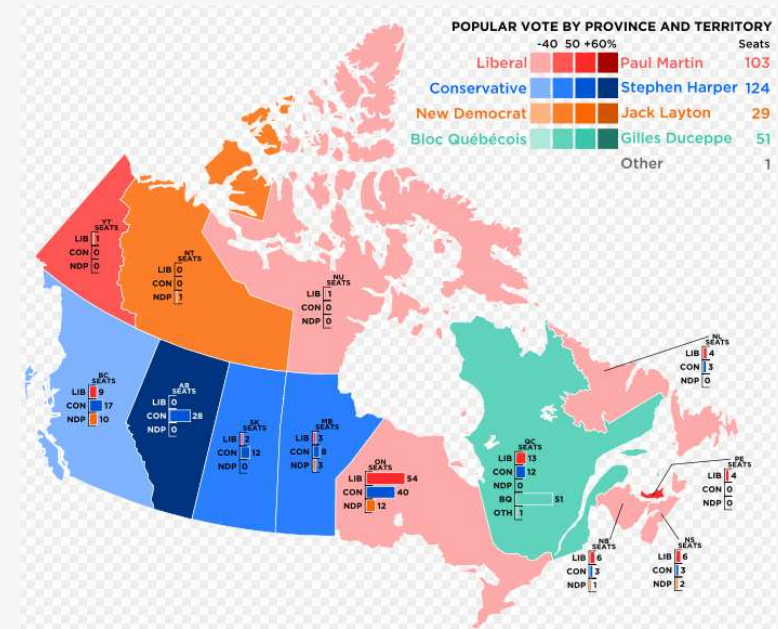
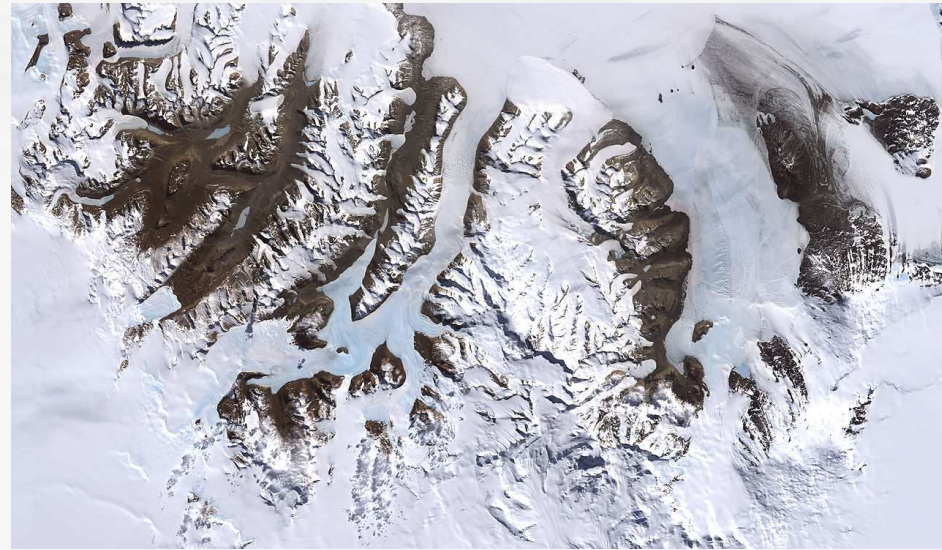
Embed maps in wiki pages, where `<slippymap>` tag is used:

- Maps are static images by default (generated server-side using Mapnik)
- Interactive maps can be activated by clicking on map (tiles generated server-side with Mapnik, with interactivity and map layers assembled client-side with OpenLayers JavaScript library)

# OSM – not ideal?

Default OSM maps are not ideal for some wiki articles.

- Default OSM styling focuses on set list of features
- Does not include terrain shading, which may be appropriate for maps of natural features and phenomena.
- Not suitable for thematic (e.g. choropleth / statistical) maps



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# Future - Custom maps

- Each set of map styles or layers (e.g. satellite, OSM) with full global coverage and zoom levels requires substantial disk storage space for all the map tiles.
- We are limited in the number of custom styles that we can provide with full global coverage and zoom levels.
- But, Default OSM maps are not ideal for some wiki articles.
- With the PostgreSQL and rendering infrastructure in place, it will be possible to provide custom map making tools for maps with limited spatial coverage and zoom levels.



# Future - Base map options

Provide a number of base map layers

OpenStreetMap (default base layer)

- Mapnik?

- OpenLayers vector rendering?

Satellite imagery (optional)

Political boundaries for thematic (statistical) maps

Terrain hillshading

# Future - Base map options

## Satellite imagery

### Landsat

- global coverage to 83 N / 83 S
- 15 meter monochromatic resolution


### Blue Marble

- global composite from MODIS (2004)
- lower resolution, true color mosaic

### Aerial imagery


- NAPP (national aerial photography program)
- U.S. only
- One meter resolution
- Possibly other sources?

# MapMaker – base layers

 **Wiki MapMaker**

[Find data](#) | [Make a map](#)

Make a map: >> [Select base layer](#) >> [Set parameters](#) >> [Select overlays](#) >> [Generate map](#) >> [Preview in wiki page](#) >> [Add to wiki page](#)



A world map showing the Blue Marble satellite imagery base layer. The map includes navigation controls on the left side: a compass rose for panning, a zoom-in (+) and zoom-out (-) button, and a globe icon for full-screen or refresh.

**Map title**

**Author**

**Base Layers**

- Boundaries
- OpenStreetMap
- Blue Marble

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# MapMaker – parameters



Wiki MapMaker

Find data

Make a map

Make a map: >> Select base layer >> Set parameters >> Select overlays >> Generate map >> Preview in wiki page >> Add to wiki page



## Parameters

### Center

Latitude:  Longitude:

### Zoom level

# MapMaker – overlays

## Map overlays:

- WMS layers
- Vector layers (points, lines, polygons)
  - KML
  - Shapefiles
  - GML
  - WFS
- Markers

## Data sources:

- <http://www.data.gov> - earthquakes, weather, census data ...
- other remote sites (like pulling videos from Internet Archive)
- user uploaded data?

# MapMaker -map stylesheet

Generate map style sheet, containing:

- Map base layer
- Parameters
- Overlays
- Styling information

# MapMaker –generate map

Generate map from style sheet:

- Static map generated with Mapnik
- Interactive, but limited zoom maps, with OpenLayers for statistical maps, with mouseovers
- Add to Wikimedia Commons and make available
- Users can add to wiki pages
- If tied to live dataset (e.g. earthquakes), allow updated maps to be generated on a schedule?





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