



Mapping Trees on OpenStreetMap

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Maps Matter Blog: sk53-osm.blogspot.com

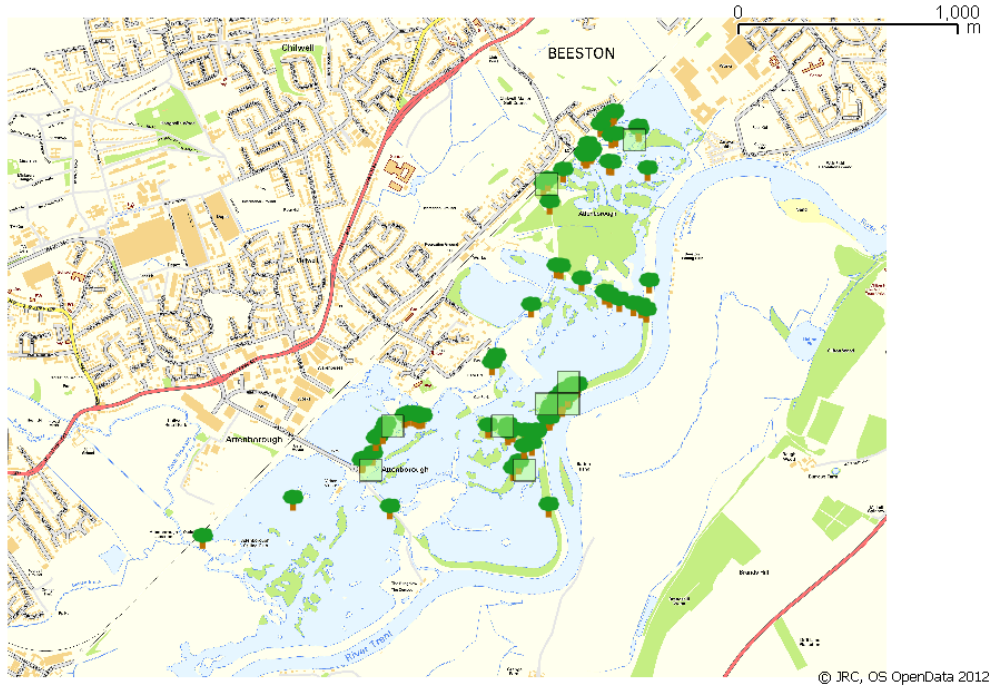
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Outline

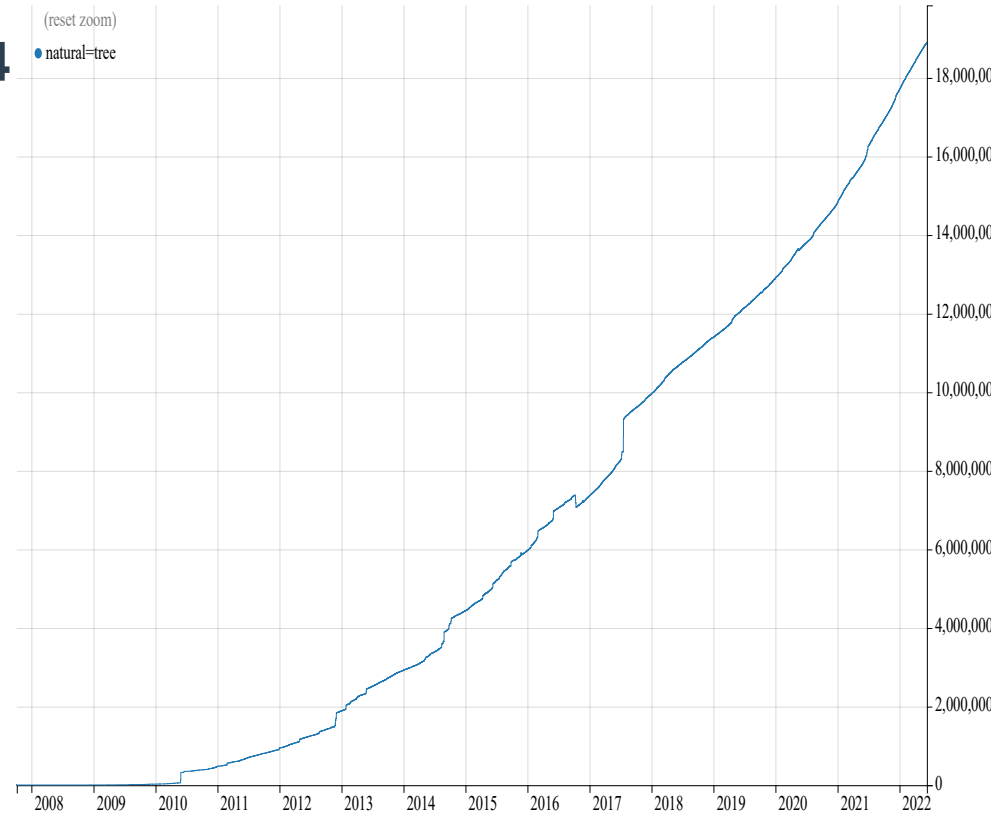
- **Introduction**
 - My own interest in trees
 - Focus on trees outside woodlands on OSM
- **Why people map trees**
- **How are trees mapped on OSM**
 - Aerial Imagery
 - Ground Survey
 - Imports
 - Incremental improvement
- **Using OSM tree data**
 - Level of Detail
 - Data sparsity & clumpiness
 - Accuracy
- **Conclusions**
- **Additional resources**

My own interests in trees

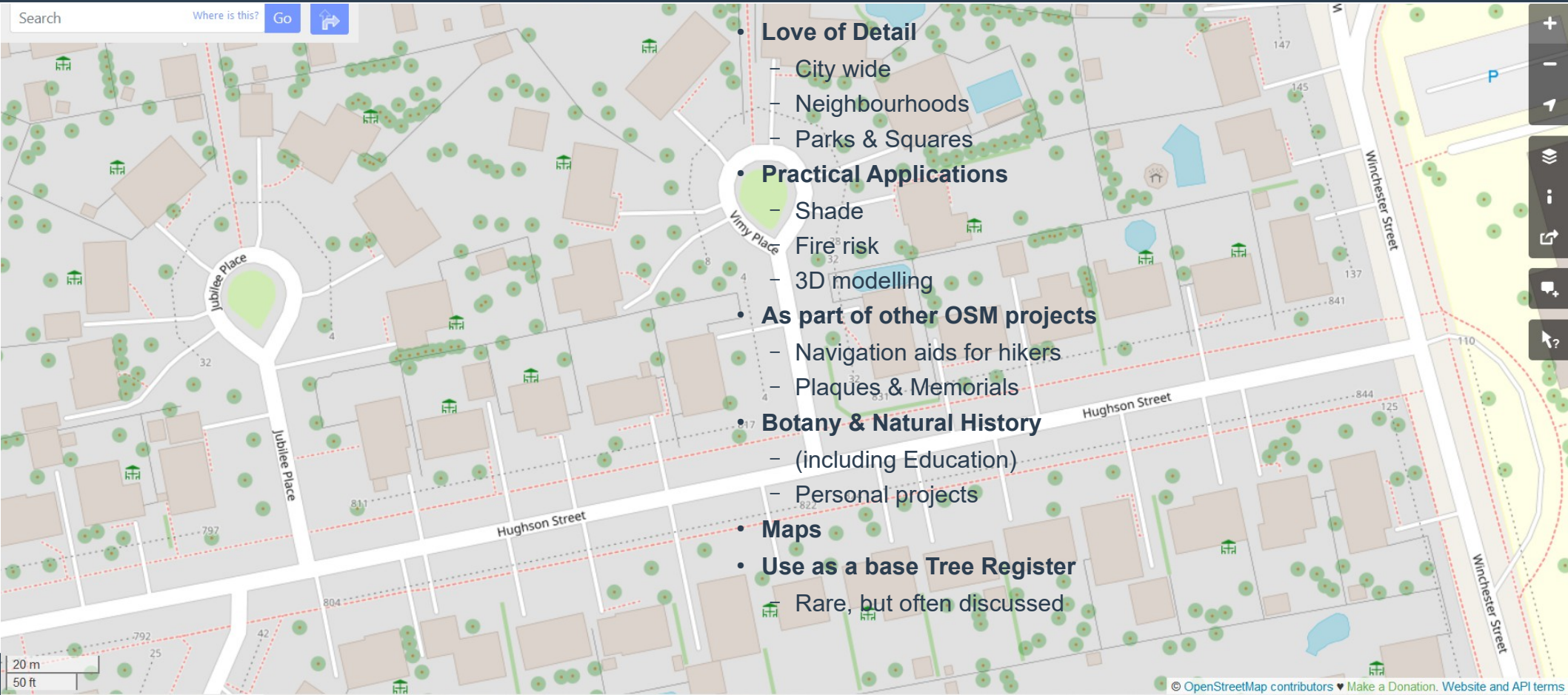


OSM & trees: A little history

- **OSM started in London, August 2004**
- **190 trees worldwide mid-2007**
- **Main map on website shows trees**
 - Since at least 2008
 - Extensive discussions on cartography of woodland & trees
- **Today > 18 million trees**
 - & 1 million avenues
 - 1 million in UK
 - 3rd most popular object



Why People Map Trees



Detailed tree mapping: Parks & popular public spaces



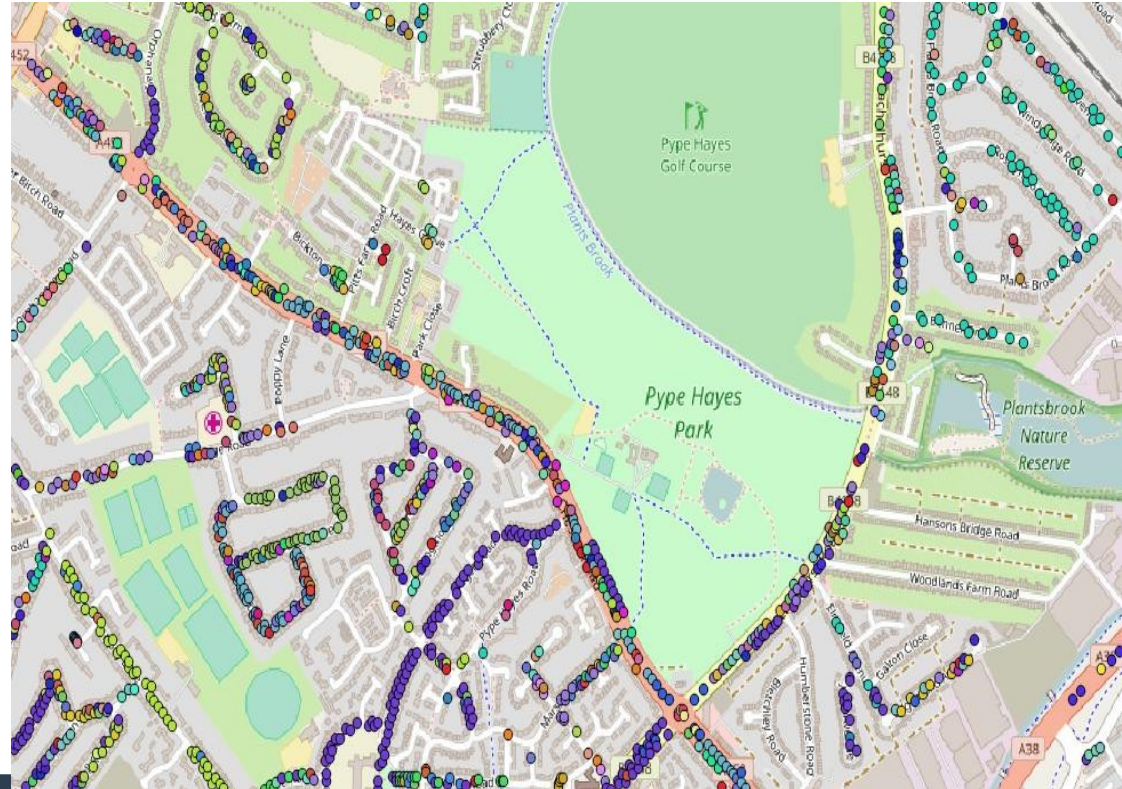
How trees get mapped



- **Aerial imagery**
 - Mainly just position, often inaccurate
- **Ground survey**
 - Wandering around with a GPS, laser rangefinder & a notebook
- **Imports of open data**
- **Combinations**

Example of Imported Data: Birmingham Street Trees

- **Data quality often an issue**
 - Check sample of trees in open data
 - 1% sample (180ish)
 - Centre of city
 - QEH/University, Edgbaston
- **Issues**
 - About 6% had one or more issues with attributes I checked
 - Tree gone
 - Incorrect taxon (Hazel not Turkish Hazel)
 - Incorrect owner (University Tree Tags)



Levels of Detail & associated tags (data fields)

- **Level 1: Basic positional information**
 - natural=tree or tree_stump or tree_row (an avenue)
 - Nearly always mapped as a point (node), mapping as areas frowned upon, but some exceptions exist, e.g., large Banyan tree which shades a market in Bengal.
- **Level 2: leaf_type & leaf_cycle (16%)**
 - Useful info anyone can collect; tags also used on woods, hedges etc
 - Some oddities: *Ginkgo biloba* counts as leaf_type=broadleaved
- **Level 3: Botanical identification (6%)**
 - species, genus, taxon, taxon:* (e.g., cultivar)
 - Former tags more widely used, but latter offer greater flexibility
- **Level 4: Physical data (3-4%)**
 - Diameter, circumference, crown diameter (=spread), height & variant forms of these tags
- **Level 5: Extras (~ 1%)**
 - Planting date. Dedications, memorials.
 - Identifier from tree tags
 - Structure, pollarding etc. (not really in use, other than as imported data values, but has been discussed).

Conclusions

- **Long tradition of worldwide tree mapping**
 - Rich set of attributes available
 - Best practices available for mapping/importing (not codified)
 - Tends to have an urban focus
- **Best used at a local scale**
 - Patchy at a national/regional scale
 - Well-suited to specific projects
 - Community Orchards
 - LNRs
 - Neighbourhood plans
 - Local Wildlife Groups
 - Citizen Science/Education
- **OSM philosophy**
 - Incremental
 - Iterative
 - “Good enough”
- **Persistence of OSM Technology & tools**
 - Particularly valuable for continuity of projects with short-term funding
- **Future Improvements**
 - Feedback through cartography
 - Purpose built apps
 - MapComplete & StreetComplete
 - Gamification

Resources & Learning More

- **Blog Posts**

- Maps Matter
 - <http://sk53-osm.blogspot.com/>
 - (my own blog with articles on mapping trees & woodlands)
- Imagico (Christoph Hormann)
 - <http://blog.imagico.de/en/>
 - Detailed cartographic issues related to trees & woodland

- **Import Discussions (OSM Wiki)**

- Ottawa
 - <https://wiki.openstreetmap.org/wiki/Ottawa/Import/Trees>
- Vienna
 - <https://gisforge.wordpress.com/2012/12/02/osm-import-of-the-opengovernment-treecadastre-of-vienna/>

- **OSM Wiki**

- Tag descriptions

- **Inspecting Data**

- Taginfo
- Overpass-turbo

- **Showing Data**

- Umap

- **Mapping**

- MapComplete Tree theme