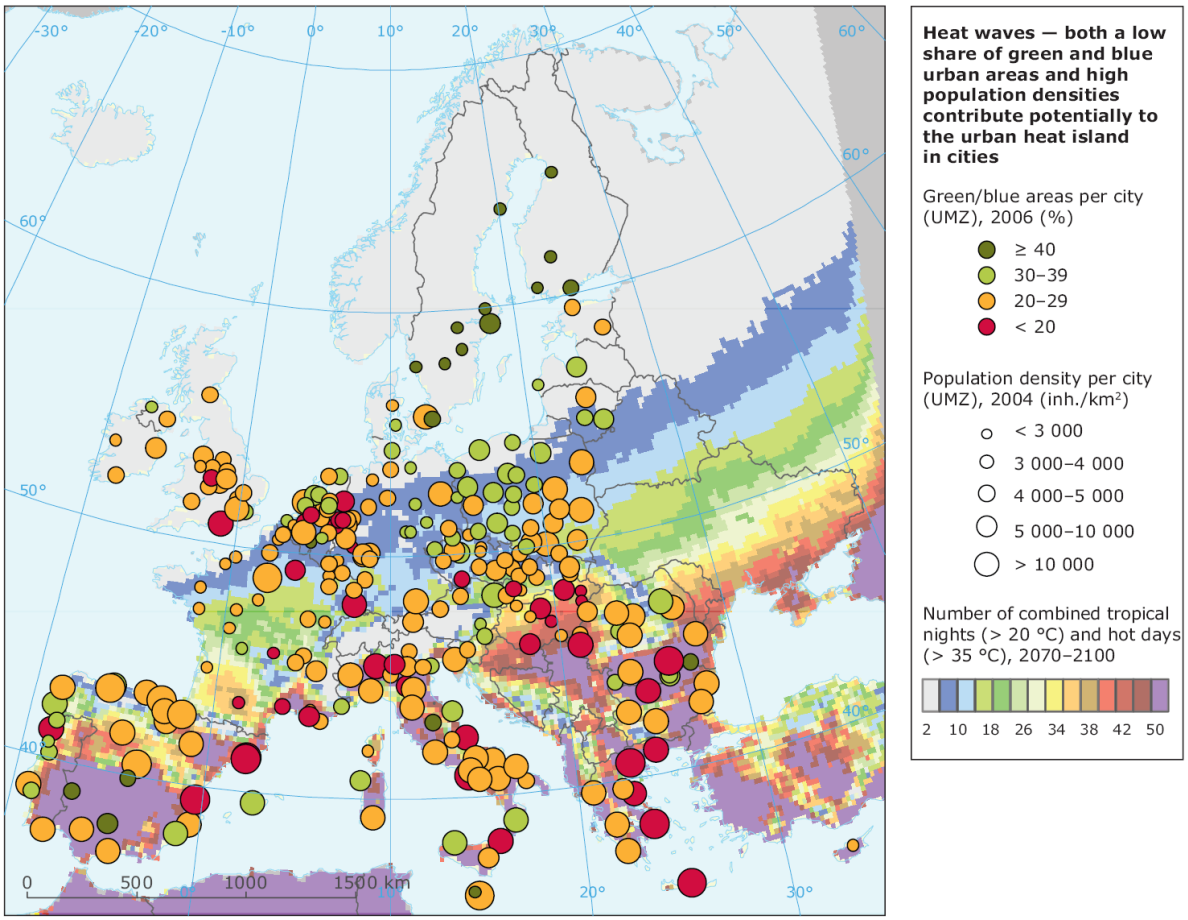
Share of green and blue urban areas in cities as an indicator for heat waves (map 2.5)

Map 2.5 **Heatwaves — both a low share of green and blue urban areas and high population densities can contribute to the urban heat island effect in cities**



The map above shows the share of green and blue urban areas per city. The city is defined by its morphological delineation according to urban land use classes which intersects with the core city delineation defined by Urban Audit (see annex "Defining the city area," http://www.eea.europa.eu/publications/urban-adaptation-to-climate-change/defining-the-city-area). Green and blue urban areas have been extracted from the Urban Atlas product, i.e. values for 369 core cities were available.

The selection of classes contained in the green and blue urban areas is based on their relevance for the Urban Heat Island effect. This causes differences in the green area values compared to the maps published in e.g. EEA, 2010b where public green urban areas with recreational potential were addressed. Here we included also discontinuous low and very low density urban fabric as it can be assumed that these areas provide substantial vegetation, e.g. in form of private gardens, which are relevant for the local climate. The following selection has been made; all classes marked in green are components of the green and blue urban areas:

CODE	Urban Atlas classes
11100	Continuous Urban Fabric (S.L. > 80%)
11210	Discontinuous Dense Urban Fabric (S.L. : 50% - 80%)
11220	Discontinuous Medium Density Urban Fabric (S.L. : 30% - 50%)
11230	Discontinuous Low Density Urban Fabric (S.L. : 10% - 30%)
11240	Discontinuous Very Low Density Urban Fabric (S.L. < 10%)
11300	Isolated Structures
12100	Industrial, commercial, public, military and private units
12210	Fast transit roads and associated land
12220	Other roads and associated land
12230	Railways and associated land
12300	Port areas
12400	Airports
13100	Mineral extraction and dump sites
13300	Construction sites
13400	Land without current use
14100	Green urban areas
14200	Sports and leisure facilities
20000	Agricultural areas, semi-natural areas and wetlands
30000	Forests
50000	Water bodies

Those classes were extracted from the Urban Atlas, their area summed up and its share in relation to the total area of the core city calculated. For the map production the values were classified into four classes and presented as coloured dots on the map: green dots represent cities with a high or relatively higher share of green and blue urban areas, red and orange dots correspond to cities with a low share.

The background map is a modelled map of the number of combined tropical nights (>20°C) and hot days (>35°C) in the period 2070-2100 (Fischer et al, 2010). It provides an indication, where the probability of heat waves in the future is particular high. A low share of green and blue areas will further increase the heat wave impacts in cities.

Data sources:

Urban Atlas (EEA)
http://www.eea.europa.eu/data-and-maps/data/urban-atlas

UMZ_v15_2006 Urban Morphological Zones 2006 (EEA)
http://www.eea.europa.eu/data-and-maps/data/urban-morphological-zones-2006-umz2006-f3v0

Urban Audit database (Eurostat)
http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/introduction