**Appendix S4**. Wolf populations in Europe included in the meta-analysis. The geographic location of the sampled populations is shown in Fig. 5. The Sierra-Morena population is missing due to a lack of data; data for Russian populations are included. Number of individuals used in the study (*N*), number of loci (*NL*) used in the study, number of loci identical to loci used in Hindrikson *et al*. (2013) (N*I*), observed (*HO*) and expected heterozygosities (*HE*), inbreeding coefficient (*FIS*), and mean number of alleles per locus (*NA*) are shown.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | European wolf population/management unit | Country | Study | *N* | *NL* | *NI* | Coordinates | | *HO* | *HE* | *FIS* | *NA* |
| 1 | Russia | Russia | Aspi *et al.* (2009) | 14 | 10 | 8 | 62°N | 33°E | 0.63 | 0.64 | 0.05 | 4.7 |
| 2 | Russia | Aspi *et al.* (2009) | 29 | 10 | 8 | 64°N | 42°E | 0.66 | 0.71 | 0.09 | 5.7 |
| 3 | Russia | Sastre *et al.* (2011) | 47 | 13 | 3 | 56°N | 34°E | 0.663 | 0.782 | 0.147 |  |
| 4 | Scandinavia | Sweden and Norway | Vilà *et al.* (2003*a*) | 93 | 19 | 10 | 60°N | 12°E | 0.59 | 0.55 | ̶ 0.08 | 3.7 |
| 5 | Sweden and Norway | M. Åkesson, (unpublished data) | 48 | 23 ̶ 35 |  | 60°N | 14°E | 0.56 | 0.55 | 0.01 | 3.83 |
| 6 | Karelian | Finland | Aspi *et al.* (2006) | 118 | 10 | 8 | 62°N | 27°E | 0.7 | 0.67 | ̶ 0.02 | 5.43 |
| 7 | Finland | Lucchini *et al*. (2004) | 13 | 18 | 8 | 62°N | 25°E | 0.69 | 0.73 | 0.06 | 5.5 |
| 8 | Finland | Jansson *et al. (*2012) | 33 | 17 | 9 | 63°N | 25°E | 0.615 | 0.677 | 0.11 | 6 |
| 9 | Baltic | Latvia | Lucchini *et al.* (2004) | 38 | 18 | 8 | 56°N | 26°E | 0.71 | 0.73 | 0.03 | 6.9 |
| 10 | Estonia and Latvia | Hindrikson *et al.* (2013) | 52 | 16 | 16 | 58°N | 25°E | 0.76 | 0.72 | -0.07 | 7.63 |
| 11 | Estonia and Latvia | Hindrikson *et al.* (2013) | 39 | 58°N | 25°E | 0.73 | 0.75 | 0.03 | 7.31 |
| 12 | Estonia and Latvia | Hindrikson *et al.* (2013) | 38 | 57°N | 24°E | 0.8 | 0.79 | -0.02 | 10.81 |
| 13 | Estonia and Latvia | Hindrikson *et al.* (2013) | 37 | 59°N | 26°E | 0.7 | 0.65 | 0.09 | 6.38 |
| 14 | Lithuania | Baltrūnaitė *et al.* (2013) | 29 | 29 | 5 | 55°N | 24°E | 0.69 | 0.71 | 0.02 | 6.85 |
| 15 | Central European Lowland | Germany | C. Nowak, (unpublished data) | 131 | 12 | 6 | 52°N | 13°E | 0.57 | 0.56 | ̶ 0.02 | 5.42 |
| 16 | Germany and Poland | Czarnomska *et al.* (2013) | 200 | 11 | 8 | 52°N | 15°E | 0.57 | 0.58 | 0.02 | 5.58 |
| 17 | Carpathians | Poland | Czarnomska *et al.* (2013) | 72 | 49°N | 22°E | 0.52 | 0.65 | 0.2 | 6 |
| 18 | Poland | Czarnomska *et al.* (2013) | 31 | 49°N | 20°E | 0.58 | 0.64 | 0.12 | 6 |
| 19 | Poland | Czarnomska *et al.* (2013) | 44 | 49°N | 18°E | 0.56 | 0.63 | 0.13 | 5.91 |
| 20 | Poland | Czarnomska *et al.* (2013) | 38 | 50°N | 22°E | 0.52 | 0.67 | 0.24 | 5.64 |
| 21 | Baltic | Poland | Czarnomska *et al.* (2013) | 12 | 51°N | 23°E | 0.54 | 0.67 | 0.24 | 4.82 |
| 22 | Poland | Czarnomska *et al.* (2013) | 55 | 52°N | 23°E | 0.54 | 0.65 | 0.19 | 5.18 |
| 23 | Poland | Czarnomska *et al.* (2013) | 45 | 53°N | 22°E | 0.51 | 0.63 | 0.2 | 4.91 |
| 24 | Poland | Czarnomska *et al.* (2013) | 40 | 53°N | 23°E | 0.51 | 0.65 | 0.24 | 5.81 |
| 25 | Poland | Czarnomska *et al.,* 2013 | 17 | 54°N | 22°E | 0.45 | 0.63 | 0.31 | 4.27 |
| 26 | Poland | Czarnomska *et al.,* 2013 | 26 | 53°N | 21°E | 0.55 | 0.69 | 0.23 | 5.36 |
| 27 | Poland | Czarnomska *et al.,* 2013 | 20 | 53°N | 20°E | 0.48 | 0.66 | 0.31 | 5.63 |
| 28 | Central European Lowland | Poland | Czarnomska *et al.,* 2013 | 57 | 53°N | 17°E | 0.52 | 0.69 | 0.26 | 6.64 |
| 29 | Baltic | Poland and Belarus | Czarnomska *et al.,* 2013 | 29 | 52°N | 23°E |  | 0.73 |  | 6.9 |
| 30 | Alpine | Italy | Fabbri *et al.* (2007) | 141 | 12 | 6 | 45°N | 7°E | 0.57 | 0.56 | ̶ 0.03 | 3.5 |
| 31 | Italian penisula | Italy | Fabbri *et al.* (2007) | 147 | 44°N | 10°E | 0.6 | 0.62 | 0.04 | 5.42 |
| 32 | Italy | Fabbri *et al.* (2007) | 126 | 42°N | 13°E | 0.62 | 0.64 | 0.04 | 5.25 |
| 33 | Italy | Fabbri *et al.* (2007) | 21 | 40°N | 16°E | 0.59 | 0.59 | 0.02 | 4.08 |
| 34 | Alpine | Italy | Fabbri *et al.* (2014) | 7 | 12 | 8 | 44°N | 7°E | 0.46 | 0.51 | 0.06 | 3 |
| 35 | Italian penisula | Italy | Fabbri *et al*. (2014) | 110 | 43°N | 12°E | 0.56 | 0.57 | 0.02 | 4.9 |
| 36 | Italy | Fabbri *et al*. (2014) | 140 | 41°N | 14°E | 0.56 | 0.58 | 0.03 | 4.7 |
| 37 | Italy | Fabbri *et al. (*2014) | 25 | 40°N | 15°E | 0.56 | 0.55 | 0.01 | 3.8 |
| 38 | Italy | Lucchini *et al.* (2004) | 103 | 18 | 8 | 43°N | 11°E | 0.44 | 0.49 | 0.1 | 4.4 |
| 39 | Dinaric-Balkan | Croatia | Lucchini *et al.* (2004) | 24 | 18 | 8 | 45°N | 16°E | 0.63 | 0.69 | 0.09 | 5.4 |
| 40 | Croatia and Bosnia and Herzegovina | Lucchini *et al.* (2004) | 42 | 18 | 8 | 45°N | 14°E | 0.62 | 0.66 | 0.06 | 5.7 |
| 41 | Croatia and Bosnia and Herzegovina | Fabbri *et al*. (2014) | 40 | 12 | 8 | 44°N | 15°E | 0.69 | 0.72 | 0.04 | 6 |
| 42 | Croatia and Bosnia and Herzegovina | Fabbri *et al.* (2014) | 65 | 43°N | 16°E | 0.66 | 0.7 | 0.06 | 6.7 |
| 43 | Greece and Bulgaria | Lucchini *et al.* (2004) | 39 | 18 | 8 | 41°N | 24°E | 0.69 | 0.73 | 0.06 | 6.7 |
| 44 | NW Iberian | Spain | Ramirez *et al.* (2006) | 20 | 13 | 3 | 42°N | 5°E | 0.53 | 0.65 | 0.15 | 4.8 |
| 45 | Spain | Lucchini *et al.* (2004) | 32 | 18 | 8 | 41°N | 3°E | 0.5 | 0.6 | 0.17 | 4.7 |
| 46 | Spain | Sastre *et al.* (2011) | 37 | 13 | 3 | 41°N | 4°E | 0.52 | 0.65 | 0.18 | 5.5 |
| 47 | Spain and Portugal | Godinho *et al.* (2011) | 208 | 42 | 7 | 41°N | 6°E |  | 0.62 |  | 6.41 |
| 48 | Spain | R. Godinho (unpublished data) | 136 |  |  | 42°N | 7°E | 0.53 | 0.61 | 0.12 |  |
| 49 | Portugal | R. Godinho (unpublished data) | 39 | 41°N | 7°E | 0.56 | 0.60 | 0.07 |  |
| 50 | Italian peninsula | Italy | Randi & Lucchini (2002) | 104 | 18 | 9 | 44°N | 10°E | 0.44 | 0.5 | 0.1 | 4.3 |
| 51 | Italy | Verardi *et al*. (2006) | 220 | 16 | 5 | 42°N | 11°E | 0.46 | 0.52 | 0.13 |  |
| 52 | Italy | Randi *et al.* (2014) | 63 | 39 | 9 | 43°N | 11°E | 0.46 | 0.48 | 0.06 | 4 |
| 53 | Dinaric-Balkan | Croatia | Randi *et al.* (2014) | 26 | 39 | 45°N | 14°E | 0.68 | 0.7 | 0.03 | 5.6 |
| 54 | Carpathians | Czech Republic and Slovakia | Randi *et al.* (2014) | 10 | 39 | 48°N | 18°E | 0.58 | 0.66 | 0.13 | 4.1 |
| 55 | Dinaric-Balkan | Bulgaria and Greece | Moura *et al.* (2014) | 102 | 14 | 11 | 41°N | 24°E | 0.65 | 0.73 | 0.11 |  |
| 56 | Italian peninsula | Italy | Caniglia *et al.,* 2014 | 414 | 13 | 9 | 44°N | 10°E | 0.56 | 0.57 | 0.04 | 5.25 |
| 57 | NW Iberian | Central Portugal, south of Douro river | R. Godinho (unpublished data) | 8 | 49 | 8 | 40°N | 7°E | 0.51 | 0.49 | ̶ 0.04 | 2.98 |
| 58 | Carpathians | Poland | Gula *et al*. (2009) | 39 | 8 | 6 | 49°N | 22°E | 0.56 | 0.66 |  |  |