Predictions of future PWN spread

The predictions of the pine wood nematode (PWN) natural spread in 2018, 2022, 2026 and 2028 are provided in the spatial layer with name Predictions_PWN_spread_outwards_2018_2022_2026_2028; all the 8 files of the spatial layer (shapefile format) are zipped in a single compressed file with that name.

Note that the PWN spread simulations were initiated from the observed PWN range in Portugal as of October 2016, and that they simulate only the outward spread of the PWN from the 2016 infected range towards the 20 km wide buffer zone established in Portugal (along the border with Spain) and Spain. Note also that the predictions refer to the natural PWN spread, i.e. as dispersed by the longhorn beetle Monochamus galloprovincialis, its only known vector in Europe (see the paper for details). The spatial layer covers all mainland Portugal and the part of Spain up to a 50 km distance from the border with Portugal, which includes all the coniferous forest areas with some non-zero probability of PWN infection for the simulated years. The results of these PWN spread predictions are shown in Figure 4 of the paper.

The spatial layer has the following fields in the attribute table:

- **NodeID.** Numerical identifier of each of the nodes (1 km x 1 km cells) with coniferous forest (see section 2.1.2 in the main text of the paper and Appendices S1 and S2 for details).

- **Type.** Each of the nodes is classified in one of the following three types:
  - Type = 0. Nodes that fall within the PWN range observed in Portugal as of October 2016. These infected nodes are those used to initiate the PWN future spread simulations.
  - Type = 1. Nodes for which the predictions of the future PWN spread are provided. These are nodes that are not already within the PWN range in 2016 (hence of Type ≠ 0) and that are located outwards the PWN range of 2016, i.e. towards the 20 km wide buffer zone established in Portugal (along the border with Spain) and Spain. The predictions with the PWN infection probabilities are provided for these nodes in the fields Pred2018, Pred2022, Pred2026 and Pred2028 (see below).
  - Type = -1. Nodes that are not within the PWN range in 2016 (hence of Type ≠ 0) and that are not located towards the outside of the PWN range in 2016 (hence of Type ≠ 1) but closer to the location in which the PWN was first detected in Portugal (district of Setubal, southwestern Portugal, close to Lisbon) in 1999. The predictions of future PWN spread in the attached layer only cover the outward spread of the PWN and are hence not provided for these nodes.

- **Pred2018.** Probability of each node being infected by the PWN in 2018, as given by Equation 4 in the PWN spread model (see the paper for details). The infection probability is only given for the nodes with Type = 1 (see above); for these nodes, it may be equal to 0 for those not reached by the PWN in year 2018 according to the model predictions. All other nodes (Type = 0, Type = -1) have a value of -999 in this field (no model predictions are given for these nodes).

- **Pred2022.** Same as above but for year 2022.

- **Pred2026.** Same as above but for year 2026.

- **Pred2028.** Same as above but for year 2028.