

List of descriptive attributes included in the Database of European Forest Insect & Disease Disturbances DEFID2 v1.0

How to cite the database:

Forzieri, G., Dutrieux, L. P., Elia, A., Eckhardt, B., Caudullo, G., Álvarez Taboada, F., Andriolo, A., Bălăcenoiu, F., Bastos, A., Buzatu, A., Castedo Dorado, F., Dobrovolný, L., Duduman, M.-L., Fernandez-Carillo, A., Hernández-Clemente, R., Hornero, A., Ionut, S., Lombardero, M. J., Junttila, S., Lukeš, P., Marianelli, L., Mas, H., Mlčoušek, M., Mugnai, F., Netoiu, C., Nikolov, C., Olenici, N., Olsson, P.-O., Paoli, F., Paraschiv, M., Patočka, Z., Pérez-Laorga, E., Quero, J. L., Rüetschi, M., Stroheker, S., Nardi, D., Ferenčík, J., Battisti, A., Hartmann, H., Nistor, C., Cescatti, A., Beck, P. S. A., 2023. The Database of European Forest Insect and Disease Disturbances: DEFID2. *Global Change Biology* (in press). DOI: [10.1111/gcb.16912](https://doi.org/10.1111/gcb.16912)

How to contribute data:

Mail to JRC-DEFID2@ec.europa.eu and consult the [DEFID2 Protocol](#).

How to easily access and analyse the DEFID2 database in R:

Use the dedicate package: <https://code.europa.eu/jrc-forest/defid2r>

The DEFID2 dataset has four layers with different relations between geometries and disturbance events:

- exact polygon: the extent of the disturbance corresponds exactly to the coverage of the polygon geometry provided;
- exact point: a point geometry locates exactly a disturbance patch;
- substitute polygon: the disturbance(s) occur/s within the polygon geometry but does/do not cover the entire extent of it;
- substitute point: a point geometry with a loose spatial relation to the disturbance event.

Attribute name	Definition	Type	Attribute value
fid	Feature identifier; automatically generated	Integer	
event_id	Identifier of the event in the original database from which the feature was generated	Integer	
geom_ids	Identifiers of the geometries in the original database composing this feature	Text	
survey_date	Date of survey of disturbance	Date	YYYY-MM-DD
survey_date_precision	Precision of reported survey date	Text	+/- XX days exact MM/YYYY-MM/YYYY
agents	Comma'separated list of disturbance agents	Text	Ips typographus, Thaumetopoea pityocampa, Tomicus destruens, etc.
hosts	Comma'separated list of affected hosts	Text	Picea Abies, Pinus halepensis, Pinus nigra, etc.
symptoms	Comma'separated list of symptoms	Text	Defoliation, Discolouration, Mortality, Dieback
survey_method	Data acquisition method	Text	NULL Aerial photointerpretation Satellite photointerpretation Remote sensing classification Field surveys
trigger_primary	Primary trigger of damage	Text	NULL Drought Heatwave Wind/Storm Fire Snow/Ice Pest/Disease
trigger_secondary	Secondary trigger of damage	Text	NULL Drought Heatwave Wind/Storm Fire Snow/Ice Pest/Disease
trigger_primary_date	Date of primary trigger of damage	Date	NULL YYYY/MM/DD
trigger_secondary_date	Date of secondary trigger of damage	Date	NULL YYYY/MM/DD
country	Country of damage	Text	Country name
silvicultural_system	Type of silvicultural system of the disturbed forest stand	Text	NULL Clear cut Shelterwood Selective logging None
sanitary_intervention	Type of sanitary intervention	Text	NULL Clear cut Shelterwood Selective logging None
sanitary_intervention_date	Date of sanitary intervention	Date	NULL YYYY-MM-DD
sanitary_intervention_date_precision	Precision of reported sanitary intervention date	Text	+/- XX days exact MM/YYYY-MM/YYYY
pattern_defoliation	Pattern of defoliation damage	Text	NULL High-contiguous = Host species accounts for > 50% of the stand and the damage is contiguous High-patchy = Host species accounts for > 50% of the stand and the damage is patchy Low-contiguous = Host species accounts for ≤ 50% of the stand and the damage is contiguous Low-patchy = Host species accounts for ≤ 50% of the stand and the damage is patchy
pattern_discoloration	Pattern of discoloration damage	Text	NULL High-contiguous = Host species accounts for > 50% of the stand and the damage is contiguous High-patchy = Host species accounts for > 50% of the stand and the damage is patchy Low-contiguous = Host species accounts for ≤ 50% of the stand and the damage is contiguous Low-patchy = Host species accounts for ≤ 50% of the stand and the damage is patchy

Attribute name	Definition	Type	Attribute value
pattern_mortality	Pattern of mortality damage	Text	NULL High-contiguous = Host species accounts for > 50% of the stand and the damage is contiguous High-patchy = Host species accounts for > 50% of the stand and the damage is patchy Low-contiguous = Host species accounts for ≤ 50% of the stand and the damage is contiguous Low-patchy = Host species accounts for ≤ 50% of the stand and the damage is patchy
pattern_dieback	Pattern of dieback damage	Text	NULL High-contiguous = Host species accounts for > 50% of the stand and the damage is contiguous High-patchy = Host species accounts for > 50% of the stand and the damage is patchy Low-contiguous = Host species accounts for ≤ 50% of the stand and the damage is contiguous Low-patchy = Host species accounts for ≤ 50% of the stand and the damage is patchy
severity_defoliation	Defoliation severity	Text	NULL 1 Low (Equal or less than 50% defoliation) 2 High (More than 50% defoliation)
severity_discoloration	Discoloration severity	Text	NULL 1 Low (Equal or less than 50% discoloration) 2 High (More than 50% discoloration)
severity_mortality	Mortality severity	Text	NULL 1 Marginally affected (killed trees ≤ 20%) 2 Moderately affected (20% < killed trees ≤ 40%) 3 Substantially affected (40% < killed trees ≤ 60%) 4 Highly affected (60% < killed trees ≤ 80%) 5 Totally affected (80% < killed trees ≤ 100%)
severity_dieback	Dieback severity	Text	NULL 1 Low (Equal or less than 50% defoliation) 2 High (More than 50% defoliation)
is_affected	Boolean indicating whether the record corresponds to a disturbance (False in case of negative example)	Boolean	True (disturbance) False (no disturbance)
dataset_code	Unique dataset identifier	Text	ISO country code and a sequential number (e.g. FR-001)