

United Kingdom
Reporting Form 2.4: Forest damage

Pan-European indicator 2.4: Forest and other wooded land with damage, classified by primary damaging agent (abiotic, biotic and human induced) and by forest type.

Related SoEF definitions: Forest, Other wooded land, Damage to forest, Primarily damaged by insects and disease, Primarily damaged by wildlife and grazing, Primarily damaged by storm, wind, snow or other identifiable abiotic factors, Primarily human induced, Primarily damaged by fire.

Table 2.4a: Forest damage

Category	Year	Area damaged by different agents						Primarily damaged by fire	
		Total area	Primarily damaged by biotic agents		Damage primarily human induced		Primarily damaged by abiotic agents		
			Insects and disease	Wildlife and grazing	Forest operations	Other	Storm, wind, snow, etc.	1000 ha	No. of fires
Forest	2005	11	1	3	0	0	6	1	400
	2000	11	1	3	0	0	6	1	360
	1990	11	1	3	0	0	6	1	660
Other wooded land	2005	0	0	0	0	0	0	0	0
	2000	0	0	0	0	0	0	0	0
	1990	0	0	0	0	0	0	0	0
Total forest and other wooded land	2005	11	1	3	0	0	6	1	400
	2000	11	1	3	0	0	6	1	360
	1990	11	1	3	0	0	6	1	660

Table 2.4b: Major damages affecting forest health and vitality

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
--------------------	---	----------------------------	-------------------------------	----------------------------------

<i>Pine beauty moth (Panolis flammea)</i>	<i>Pinus contorta</i>	1987	<500 ha	6-7 years
<i>Pine looper moth (Bupalus piniarius)</i>	<i>Pinus sylvestris, P. contorta</i>	2004	<500 ha	6-7 years
<i>Phytophthora ramorum</i>	<i>Larix kaempferi, Quercus falcata</i>	2003	<500 ha	
<i>Phytophthora kernoviae</i>	<i>Fagus sylvatica, Quercus spp</i>	2004	<500 ha	
<i>Phytophthora disease of alder</i>	<i>Alnus spp</i>	1993	15% of affected areas	
<i>Oak Processionary Moth (Thaumetopoea processionea)</i>	<i>Quercus spp</i>	2006	<500 ha	
<i>Acute Oak Decline</i>	<i>Quercus robur, Q. petraea</i>	2006	Widespread distribution (>500 ha) and local mortality	
<i>Bleeding Canker of Horse Chestnut (Pseudomonas syringae pathovar aesculi)</i>	<i>Aesculus hippocastanum</i>	c2001	Widespread distribution (around 50% showed symptoms) and local mortality	
<i>Great spruce bark beetle (Dendroctonus micans)</i>	<i>Picea spp</i>	1995	Local mortality but widespread distribution	
<i>Red band needle blight (Dothistroma septosporum)</i>	<i>Pinus nigra var maritima, Pinus spp</i>	2007	70% of stands of <i>P. nigra</i>	

Country comments:

Category	Comments related to data, definitions, etc.	Comments on trend(s)
Annual average area damaged by all agents	Given the high threshold adopted for reporting, there is likely to be little overlap between areas damaged from more than one cause, so add the areas to get total area affected in a year.	
Primarily damaged by insects and disease	For insect and disease damage, there is a problem of going from area showing damage (the normal basis for monitoring) to area newly affected in a year. Any figures would be speculative, and probably not comparable with figures reported for other types of damage. As in UK reporting for Global FRA 2010, it is therefore preferred to adopt for the UK a much higher threshold "cause mortality or such severe dieback that the forest ecosystem changes". Regular monitoring data are not available on this basis, but expert advice is that on this basis the area newly affected in a year is less than 1,000 hectares on average.	

Primarily damaged by wildlife and grazing	For disturbance by wildlife and grazing, NIWT recorded the proportion of forest area with damage present, not the area damaged in a single year. Where present, mammal damage is likely to have been persistent for many years, so the presence of new damage need not imply that the area is newly affected. There can be overlaps between the areas recorded with mammal bark stripping and mammal browsing. The highest category recorded (more than 50% of trees affected) applied to more than 30,000 ha; as even this may not be enough to exceed the threshold adopted for FRA reporting, a plausible assumption is around 3 thousand hectares newly affected in each year.	
Damage primarily human induced forest operations	There is no evidence of significant areas suffering levels of damage through forest operations comparable with the threshold adopted for this indicator.	
Human-induced damages reported under "Other"	There is no evidence of significant areas suffering levels of other human-induced damage comparable with the threshold adopted for this indicator.	
Primarily damaged by abiotic agents e.g. storm, wind, snow, etc.	For disturbance by abiotic factors (windblow), the relevant area is the average annual area of growing stock windblown, rather than the much larger area affected by windblow. NIWT reports the area of blown woodland that remained uncleared at the survey date. To convert this to an estimate of the area blown in a year, we need an assumption about the average lag before clearance. Some may be cleared quickly, if it has good quality timber in a sizeable area with good access, but other areas may be left uncleared for years; there will also be variations between species in extent of timber deterioration over time. If we assume that the area blown remains uncleared for 1 year on average, the area blown in a year would be about the same as the area recorded by NIWT.	Estimate similar level for 1990, 2000 and 2005 (5 year averages), as there were no catastrophic storms with estimated windthrown growing stock exceeding 2 million m ³ or 2000 ha in any of these periods (the last was in October 1987).
Primarily damaged by fire	Annual data were collected until 2003-04 for the number of fires and area burned, for state forest only. Assuming a similar number of fires and % of area affected in other forests, the annual total could be around 500 hectares for all forests - this has been rounded up to 1 thousand hectares. Similarly the number of fires in state forest areas has been doubled to estimate totals that include private land.	A new vegetation fire monitoring system, including forest fires, was introduced in 2009, but no data are yet available from that source.

Major damages affecting forest health and vitality	The list has been updated since the UK report for Global FRA 2010. Acute Oak Decline has been added and Horse Chestnut Leaf Miner removed to keep the total of ten. Japanese larch (<i>Larix kaempferi</i>) has been added to the species affected by <i>Phytophthora ramorum</i> .	
--	---	--

Complementary information:

Item	Related information
Minimum size of damaged FOWL reported (recommended minimum size >0.5 ha)	
Criteria and minimum thresholds used to determine area as “damaged”	
Criteria used to determine which agents were “primarily” damaging	
Share of human induced fires	

Reporting notes:

1. An important change was introduced to this table compared with the 2007 reporting. Now this table is asking for the average area damaged during the specific year(s) within the period (as in FRA 2010), not the area with damage present (as in SoEF 2007). If for example damage occurred in 2001, the area affected should be included only once in the calculation for 1998-2002, and even if the damage is still present in 2003 it should not be included in the calculation for 2003-2007.
2. Figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively, not the data for the “central year” (1990, 2000, 2005) noted in the Table.
3. It is up to the countries to define the threshold level for the minimum size of damaged forest and other wood land to be reported. It is recommended that the minimum size be >0.5 ha (or corresponding level of other characteristics).
4. “ <i>Primarily</i> ” is mainly related to the severity of damage. The area damaged by various agents within the same year (no matter which kind of agent and how many subsequent agents) should be counted just once.
5. Sub-class “ <i>Primarily damaged by biotic agents – Wildlife and grazing</i> ”: this category includes a range of damages by different wildlife, including bark removal by deer and damages caused by rodents. Please use “ <i>Country comments</i> ” to specify types of damages included.
6. Sub-class “ <i>Primarily damaged by Fire</i> ”: Please indicate under “ <i>Country comments</i> .” the % of area affected by fire that is human induced. Other available information on the causes of fires may also be included.
7. Sub-class “ <i>Primarily damaged by abiotic agents – Storm, wind, snow, etc.</i> ” comprises: Storm, wind, snow, drought, mudflow, avalanche and other identifiable abiotic factors.
8. Sub-class “ <i>Damage primarily human induced – Forest operations</i> ”: these include damages incurred in the process of the road building and landings setting, or harvesting damage, incl. through skidding tracks, hauling and transport.

9. Sub-class "*Damage primarily human induced - Other*": these include e.g. damage from visitors to forests; vandalism, etc. Note that human induced fire is not to be reported in this class, but to be specified under "*Country comments*". Please indicate which "*other*" damage classes are reported here.
10. Total area damaged is not necessarily the sum of damage by cause, as some areas may be damaged by more than one agent.
11. Data sources: please specify sources separately for forest, other wooded land and total FOWL if sources differ.

Data sources:

References to sources of information	Quality (H/M/L)	Table 2.4 Category	Year(s)	Type of inventory	Additional comments
Forest fire statistics	H	Fire	1988-9 to 2003-4		Discontinued after 2003-04
Analysis of Management & Biodiversity Data, J Gilbert, 2007	M	Wildlife and grazing	1995-99	From NIWT sample squares	Area damaged, not damage in year