

Indicator name			Version
NF21 Number of uses and users of the ForestGALES decision support tool			27/03/16
Indicator type:	Risk/opportunity	Impact	Action
			X
SCCAP Theme	SCCAP Objective	CCRA risk/opportunity	
Natural environment	N3: Sustain and enhance the benefits, goods and services that the natural environment provides	FO3: Windthrow and storm damage	

At a glance

- The impact of climate change on future wind risk is uncertain but is likely to increase due to more frequent severe storms and wetter soils in winter
- ForestGALES is a decision support tool to help plan forest planting to minimise windthrow risk
- The tool is used by both the private forest sector and the Forestry Commission
- Forestry Commission Scotland and Forest Research promote use of Forest GALES in their climate change adaptation guidance

Latest Figure			Trend
			Increasing (2008 – 2012)
Year	Number of uses	Number of users	
2012	124	78	

Why is this indicator important?

Wind throw can cause significant damage to woodland through uprooting and snapping of stems. Scotland contains some of the windiest areas of the UK (Quine *et al.*, 2005) and the highest percentage of forest cover (Forestry Commission, 2014). Wind throw is an important factor for forest management, and the UK already experiences significant impacts from wind damage. It influences the tree species planted and management practices, including felling age and thinning regimes (Mason *et al.*, 2013).

ForestGALES is a decision support tool which aims to assist forest managers in their decisions about how to plant forest stands to minimise windthrow. The tool takes into account the effect of species, cultivation, drainage and silviculture. The probability of damaging winds occurring is then calculated using information on the wind climate of Great Britain (classified using the 'DAMS' scoring system).

ForestGALES is regarded by Forestry Commission Scotland and Forest Research as an important tool to help forest managers reduce wind throw risk to forest stands. Both refer forest managers to the tool in their climate change adaptation guidance and training activities. These data show the number of registered users and the number of uses of the web based ForestGALES software for Great Britain as recorded by Forest Research.

Related indicators:

NF16 Proportion of coniferous woodland on the National Forest Estate with a high/medium-high risk of wind throw

What is happening now?

Over the last 4 years the use of ForestGALES in Great Britain has steadily increased (Table 1). It had 124 uses in 2012, compared to 55 in 2009. The number of new users registering has also steadily increased as has the total number of on-going active users.

Table 1 Use of ForestGALES – Great Britain figures.

Year	ForestGALES (Annual Figures)		
	Number of New Users	Number of Active Users	Number of uses (log ins)
2009	31	33	55
2010	46	60	113
2011	44	74	113
2012	48	78	124

What has happened in the past?

See Table 1

What is projected to happen in the future?

ForestGALES is being promoted through Forestry Commission Scotland and Forest Research climate change adaptation guidance and training. It is expected that the number of uses and users will therefore continue to steadily increase.

Patterns of change

Since 2009, the private forest sector has had a larger number of users of ForestGALES, compared to the Forestry Commission (FC). Both groups have had an increasing number of new registered users and active users between 2009 and 2012 – see Fig. 1 and Fig. 2.

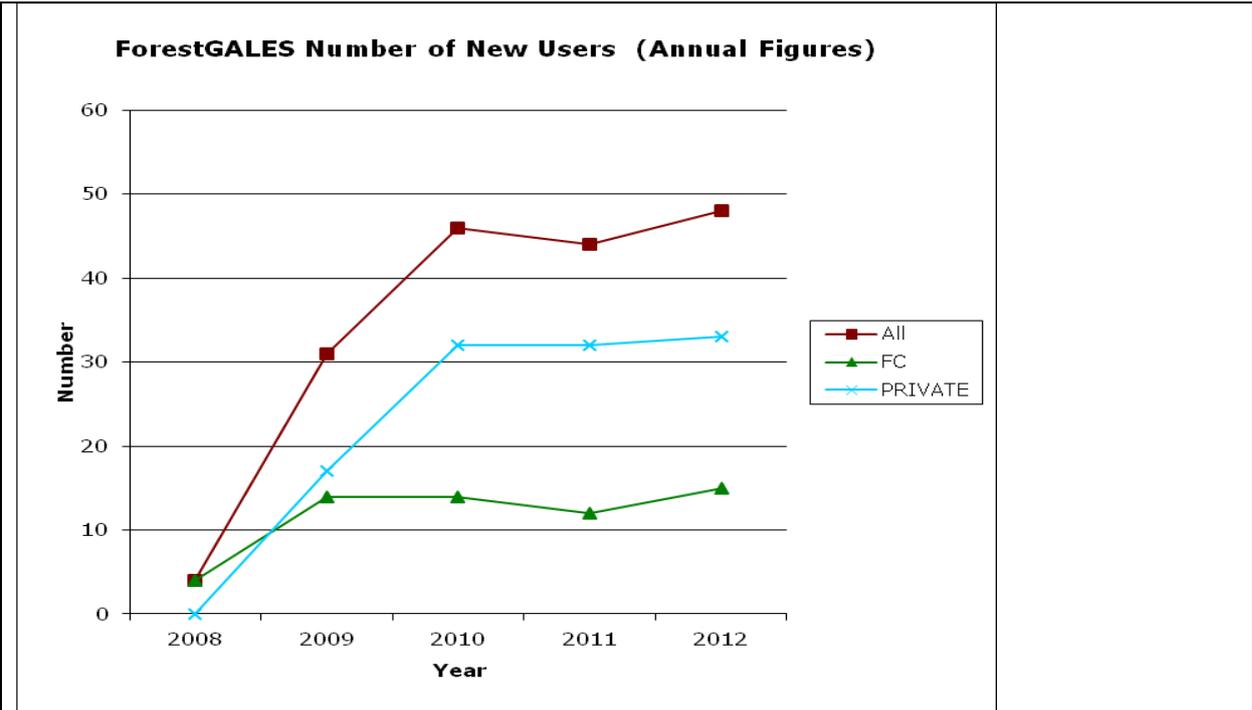


Figure 1: Number of new users of ForestGALES in total and split by private sector and Forestry Commission users - Great Britain figures.

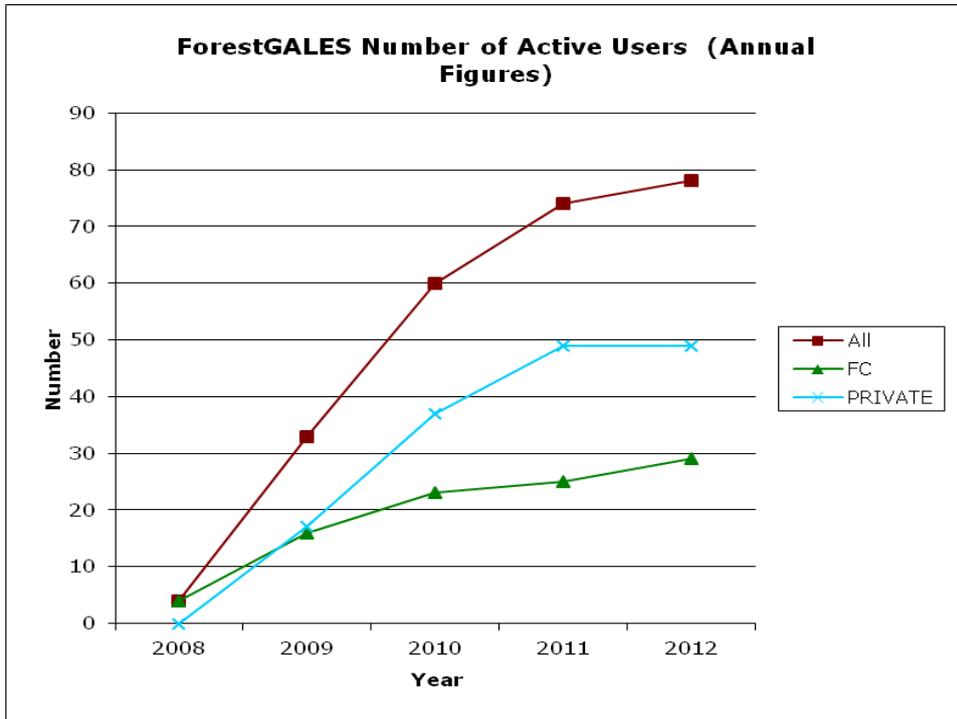
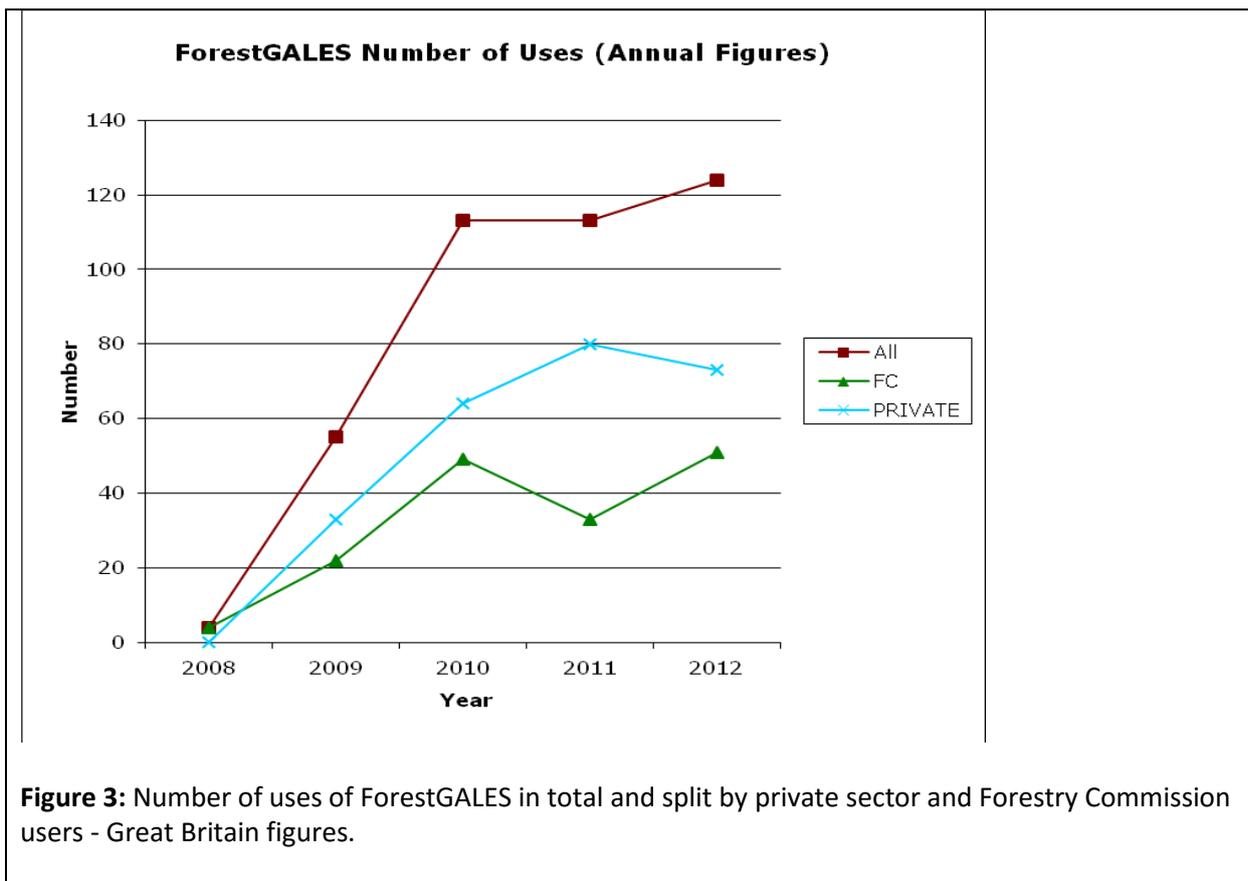


Figure 2: Number of Active Users of ForestGALES in total and split by private sector and Forestry Commission users - Great Britain figures.

The private forestry sector makes a greater number of total uses of ForestGALES per year when compared to Forestry Commission - although there has been some short term fluctuation in the number of uses – see Fig. 3.



Interpretation of indicator trends

ForestGALES is being promoted through Forestry Commission Scotland and Forest Research climate change adaptation guidance and training. Fluctuations in use may reflect changing awareness of wind risk as a result of storm damage and also changes in awareness of the ForestGALES tool, for example as a result of training

Limitations

This indicator uses figures for Great Britain rather than for Scotland because it is not possible to distinguish Scottish users from other users in Great Britain. It is hoped in the future the registration process will be adjusted so as to allow a Scottish level analysis of use.

The figures presented also only represent on-line use of ForestGALES. The tool is also available on CD with a greater range of functions than the on-line version, and as such some people prefer to request the CD rather than access the tool on-line. The total use of ForestGALES is therefore under estimated in the figures presented.

References

Forestry Commission (2014) *Forestry Facts and Figures*. Available at: www.forestry.gov.uk/forestry/infd-7aqf6j

Mason, W., and Vallinger, E., (2013) Managing forests to reduce storm damage. In: Gardiner B, Schuck, A., Schelhaas, M-J., Orazio, C., Blennow, K. and Nicoll, B. (Eds.), *Living with Storm Damage to Forests: What Science Can Tell Us 3*. European Forest Institute.

Quine, C. P., Coutts, M., Gardiner, B. and Pyatt, G. (1995) *Forests and wind: Management to minimise damage*. Forestry Commission Bulletin 114. HMSO, London.

Further information

ForestGALES:
www.forestry.gov.uk/fr/inf-d-5v8jc8

Acknowledgements

Forest Research (Kate Beauchamp, Stephen Bathgate).

Appendix One: Indicator metadata and methodology

Table 1: Indicator metadata

	Metadata
Title of the indicator	Number of uses and users of the ForestGALES decision support tool.
Indicator contact: Organisation or individual/s responsible for the indicator	Ruth Monfries (ClimateXChange/RBGE)
Indicator data source	DSS registered users data set (EMIS_USERS.csv, FOREST_DSS_AUDIT.csv)
Data link: URL for retrieving the indicator primary indicator data.	N/A. Contact Forest Research.

Table 2: Indicator data

	Indicator data
Temporal coverage: Start and end dates, identifying any significant data gaps.	Continuous since 2008.
Frequency of updates: Planned or potential updates	Continuous
Spatial coverage: Maximum area for which data is available	Scotland.
Uncertainties: Uncertainty issues arising from e.g. data collection, aggregation of data, data gaps	Classification of users into user groups completed by Forest Research.
Spatial resolution: Scale/unit for which data is collected	Per user
Categorical resolution: Potential for disaggregation of data into categories	User groups
Data accessibility: Restrictions on usage, relevant terms & conditions	Available from Forest Research.

Table 3 Contributing data sources

Contributing data sources
Data sets used to create the indicator data, the organisation responsible for them and any URLs which provide access to the data.
DSS registered users data set

(EMIS_USERS.csv, FOREST_DSS_AUDIT.csv)

Kate Beauchamp, Forest Research carried out analysis of raw data. Stephen Bathgate, Forest Research holds the raw data.

Table 4 Indicator methodology

Indicator methodology

The methodology used to create the indicator data

Collated records of users who register and go on to use the Forest Gales tool via the Forest Research website. Users of ForestGALES were identified from the Forest Research database of Decision Support Tool registration and use. Private sector and Forestry Commission users were identified from registration information; research and educational users were excluded.

Numbers of new users per year were identified from the registration date/date of first use.

Numbers of uses per year were calculated from ESC-DSS use (log in) records. The number of active users was calculated by the number of unique users logging in per year.