Forest Health and Protection

A useful definition of forest health has been proffered by the Society of American Foresters: *the perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance.*

Forest health and tree health are not the same thing: as forests grow some trees will die, mainly through competition. This is perfectly healthy.

A wide range of edaphic and environmental factors influence forest health. While all operate at the forest level, air borne influences, such as pollutant levels, originate outside the forest and are beyond the direct control of the forest manager.

Genetics also play an important role in forest health, and with the Irish forest resource comprised predominantly of plantations, this is mainly manifested in the need to match species and provenances to sites. Aspects of the COFORD programme, such as research on forest reproductive material and silviculture, therefore play an important role in supporting healthy forests. Indeed forest heath is central to all stages of the forest management cycle, from species selection to tending/thinning (removing poorly formed and diseased trees), to harvesting and final felling (avoiding and reducing soil and stem damage).

Forest health impacts on the economic and the public goods provision of forests. Unhealthy forests are generally a net source of carbon emissions, as well as being a diminishing economic asset.

Monitoring of forest health is funded separately by the Forest Service as a national follow-on to the Forest Focus Regulation ((EC) No 2152/2003)) concerning monitoring of forests and environmental interactions in the Community. The national forest inventory also monitors forest health.

Forest protection seeks to avoid or reduce damage to forests from species such as grey squirrel, deer and pine weevil and from invasive plant species such as rhododendron and laurel. Strategies to reduce damage from abiotic factors, principally fire, frost and wind, also need to be devised and applied. Research has provided ways to reduce wind damage to forests in Ireland (see Services and Technology Transfer), while avoidance and reduction of frost damage has been a significant part of the work of the BOGFOR project.

COFORD's main funding of forest protection to date has focused on biological control of large pine weevil, estimation of deer and grey squirrel population levels and refinement of windthrow damage avoidance models. Further work in forest protection is planned.

Currently, two forest health projects are underway:

- **ABATE**: Integrated reduced-chemical control of *Hylobius abietis* in Sitka spruce.
- **SQUIRRELSURVEY**: Irish Squirrel Survey 2007.