Lineside Boundary Management

What is the situation?

It is the railway's legal responsibility to ensure boundary measures are in place to prevent human and livestock incursion. We often fall short of our obligations where boundary measures are expected to perform in hostile environments without sufficient intervention. Preventative measures are not consistently adopted. The design or condition of the boundary measure is not always appropriate for the risk presented by the adjacent land use.

Animal incursion

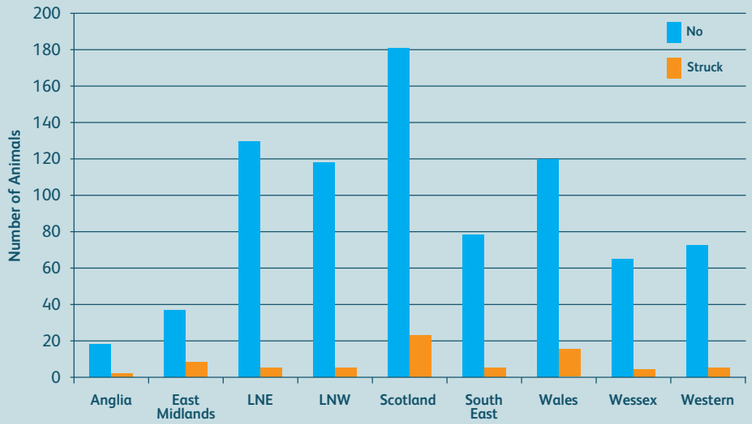

fig. 1

Analysis of causes

Priority problems

Specific priority problems

- We are alerted only at the point of when the asset fails or is about to fail.
- We are unable to demonstrate the configuration and condition of our asset.
- We react to recover the railway without investigation of the root cause.
- Some of our older, legacy, boundary designs are not adequate to prevent animal incursion.
- We lack robust systems to adequately identify and capture change in adjacent land use. This imports risk as we are then not controlling risk of incursion.

Related goals

- Asset management systems that are centred around appropriate levels of maintenance and renewal based on asset life cycle.
- An efficient system for capturing data and updating the asset register.
- Proactive and predictive measures that maintain the suitability of the asset for its location.

Benefits

- Improved performance as a result of a better-timed intervention.
- Increased asset life and improved whole life cost
- Efficiency savings by avoiding incidents.
- Improved performance as a result of better-timed intervention.

Specific research needs

We seek to operate with robust boundary measures able to meet their expected life cycle within the operating environment. We require design specifications fully tested to provide sufficient protection to withstand incursion by human and livestock. This will include benchmarking various materials used in fence construction and the methods of installation in terms of post and cladding, tension and durability.

We seek to understand how we can protect our assets from degradation. This will include protection methods and processes for steel and timber products. It will also include research into natural and introduced corrosive agents and reactions.

When boundaries fail, we seek portable systems that maintenance teams can use after incident and deploy efficiently .

We rely on a combination of inspection and information provided by others to update registers on land use. We want to develop to a stage where we always know what the land adjacent to the asset is used for, so the boundary can be adapted accordingly. We need to explore alternative methods that can provide consistent information regarding land use change.

We manage approximately 28,000km of boundary measure. We need to be confident that inspection covers all of the asset. Inspections are undertaken by field teams over terrain that is difficult to access safely. We seek safe inspection methods that can be completed by other methodologies, especially when access is interrupted.

We need assurance that any boundary repairs undertaken provide either the same or improved security, compared with the original installation. This includes assessing temporary measures that have been installed to repair the boundary where problems have occurred. Repair products must be effective without the need for regular maintenance and be quick, easy and cost-effective to carry out.