News story: Online analytical tool launched to aid invertebrate conservation

Natural England and the Centre for Ecology & Hydrology (CEH) have launched a new online database and analytical tool called Pantheon, which helps us better understand conservation status and habitat-related traits of invertebrates.

From the weevils perched on the leaves of our trees to worms burrowed deep in the earth beneath our feet, invertebrates play a crucial role to improve the ecology of our natural environment.

James Cross, Chief Executive at Natural England said:

> Pantheon is a fantastic example of how we are pushing the boundaries of science and IT to benefit invertebrate conservation. Researchers, ecologists and land managers will have access to a wealth of data.
>
> This database will play an important role in identifying trends to better protect our natural environment.

Pantheon was developed to assist invertebrate nature conservation in England. Users import lists of invertebrates into the database, which then analyses the species, attaching associated habitats, resources and conservation status against them.

This information can then be used to assign quality to sites, assist in management decisions and prompt further other ecological study. This database will help site managers, researchers, ecological consultants and is also available to the public.

With contributions from Buglife and the Royal Society for the Protection of Birds, this project brings together 10 years' worth of work by Natural England's scientists to make it easier than ever to understand the importance of invertebrates in England.

Pantheon can tell users which species are typical of woodland canopies, dead wood and shaded woodland ground layers. It can identify how many species from a selected site are using flower-rich habitat and which specific flowers they need. In the future, Pantheon will also help users understand the impact of climate change on species communities in the wider countryside and protected places, such as National Parks.

Dr Hannah Dean, database and informatics specialist at the CEH, said:

> CEH is working to develop innovative, world-class outputs that advance scientific knowledge and understanding. Pantheon combines an extensive online database with a set of analytical tools. Together these deliver vital information on invertebrate species and their habitats, enabling evidence-based decisions that support the conservation of natural resources.

Explore the Pantheon database, which is free to use.

News story: Report 07/2017: Track workers class investigation

The Rail Accident Investigation Branch (RAIB) has investigated a number of accidents involving track workers on Network Rail's infrastructure and has identified track worker safety as an area of particular concern in recent annual reports. This report describes the RAIB's investigation into the safety of track workers working outside possessions of the line (ie those cases in which the normal running of trains has not been blocked to allow engineering work to be carried out). It follows the publication in 2015 of the RAIB's report into irregularities with protection arrangements during infrastructure engineering work.

Five recommendations have been made to Network Rail. These cover

The last fatality as a result of a track worker being struck by a train occurred in 2014; there have been six such fatalities over the last ten years. However, in our recent annual reports the RAIB has expressed a concern about the number and severity of serious 'near miss' incidents, some of which have included the potential to result in multiple fatalities. By way of example, during 2015 we identified 71 incidents in which track workers working outside a possession on Network Rail infrastructure were at risk of being struck by moving trains.

I have detected a real determination in the railway industry to address this issue, and recognise the significant number of initiatives with the potential to reduce the risk to track workers, including the use of technology to provide improved protection from trains. Another such initiative is Network Rail's Planning and Delivering Safe Work (PDSW) programme, which is intended to ensure that every task is correctly planned, and implemented by a specially selected and trained individual, designated the 'Safe Work Leader' (SWL), who has been involved in the planning of the work. Although the implementation of the PDSW programme has been seriously delayed, I hope that in time it will bring further improvements to the management of track worker safety.

We undertook this class investigation because we felt that we could add some useful learning to the strategies being adopted in the industry, by analysing a sample of near miss incidents to identify recurrent causal factors.

Our analysis has shown that, in more than half of the incidents, circumstances on site had changed from those envisaged by the pre-planned safe system of work. We also point out that even the best of plans cannot predefine every detail of the system of work that is to be implemented on site. This is particularly true of red zone working where safety is dependent on the correct assessment of the required sighting. Consequently, we are recommending that the industry should consider the extent to which those with safety leadership responsibilities are able to recognise and respond appropriately to the circumstances they find on site and any subsequent changes. The RAIB has concluded that the safety of track workers is best achieved by a combination of good pre-planning and the local management of risk by the person responsible for safety on site.

Our analysis has also found that the behaviour and attitudes of track workers, including those with responsibilities for leading safety, are major factors in the causation of incidents. Given that behavioural and cultural issues can lead to breakdowns in site discipline or loss of vigilance, the RAIB considers that the industry should reinvigorate the training it provides to track workers in the 'non-technical skills' needed to work safely on the railway (ie generic skills such as the ability to take information, focus on the task, make effective decisions, and communicate clearly with others).

For me, the most striking finding of our investigation is the absence of normalised data to allow a direct comparison of incident rates for different safe systems of work. Since I believe that the first step in the management of safety is always to understand the risk, I think it is vital that Network Rail and its contractors find ways of collecting reliable data that allows these comparisons to be made (such as incidents per thousand hours worked). With this objective in mind, we have made a recommendation to Network Rail to address this gap in its understanding. I hope that the resultant normalised data will support the move towards a more risk based approach to track worker safety.

I am sometimes asked for my view on whether it is still appropriate for workers to be solely reliant on warnings of approaching trains provided by one or more lookouts – 'red zone working'. The evidence we have collected over the last 11 years suggests that the industry needs to continue looking for reliable systems of work that separate people from trains whenever practicable. Although supportive of the industry's intention to minimise the extent of red zone working, I am concerned that the industry needs also to carefully analyse the risk implications of extending the number of temporary blockages of the line, which are vulnerable to errors made by signallers as well as by those leading work on the track. I am encouraged that the industry is continuing to research and develop systems and processes designed to reduce the chance of a human error (whether by track worker, lookout or signaller) leading to an accident.

I believe that, informed by this class investigation, now would be a good

time for the industry to review and debate the steps needed to maintain recent improvements in track worker safety, while also reducing the number of near miss incidents. This debate needs to encompass ways of improving planning, how and when to apply different methods of protection, the potential benefits of new technology and how to better equip safety leaders on site to adapt to circumstances not covered by the plan.

News story: Women in Business event at the British Ambassador's residence

The British Ambassador Mr Jon Wilks, alongside British Entrepreneur Rekha Mehr MBE and Omani Businesswoman Malak Al Shaibani, hosted a Women in Business Afternoon Tea at the Ambassador's Residence.

Over the past four decades, His Majesty Sultan Qaboos bin Said has encouraged the women of Oman to work side by side with men and pursue their careers, ensuring they have the same rights to education and employment.

Following on from the previous women in business event hosted by Her Royal Highness the Duchess of Cornwall last November, this event aims to recognize women in business in Oman, and highlight their contributions towards the nation. H.E. Jon Wilks said 'On behalf of the British Embassy in Muscat, I am delighted to celebrate the contribution of Omani women to the success of the modern development of Oman in accordance with His Majesty Sultan Qaboos' vision. Our guests are inspiring in what they have achieved for the Sultanate. We invited Rekha Mehr who was awarded an honour by Her Majesty the Queen for services to enterprise and entrepreneurship, to be guest speaker so that she could share with our guests her passion for business, specifically ideas for building a support infrastructure for early stage businesses to grow and thrive.'

Rekha is a British Entrepreneur and founder of Pistachio Rose London and Monrekha Academy. She was appointed as the first Startup Entrepreneur in Residence for the Department of Business, Energy and Industrial Strategy where she works to inform policy and better shape the business support landscape. Rekha said 'Successful entrepreneurial ecosystems are built upon the foundations of strong communities. I am looking forward to meeting the local ladies who are the driving force behind supporting Omani Women in Business and sharing our stories.'

The National Business Center (NBC) provides office facilities as well as value added services to Omani entrepreneurs and has more than 40 startups operating in safety services, interior design, oil and gas services and media. The NBC has also initiated a program to recognize and support business women in Oman.

Mrs. Malak Al Shaibani, the Director General of the NBC who has worked closely with the Embassy to organize this series of events says that NBC is delighted to support and be part of these initiatives. She said 'It gives us an opportunity to interact with successful local business women and professionals, and also the opportunity to meet Rekha and learn more about her experience as an entrepreneur. Her knowledge and skills of working to improve the ecosystem is extremely valuable to us as a business incubator.'

News story: GC team verifies sampling procedure to detect carcinogenic toxins

Why aflatoxins are dangerous and challenges in detection

The Government Chemist is required to act as the national focus of technical appeal in specified areas where there is an actual or potential dispute between food businesses and regulators on the results of chemical analysis or their interpretation.

Many such disputes have involved aflatoxins, which are toxins generated by moulds that can cause cancer. Port Health Authorities safeguard the food supply coming into the UK by sampling large consignments of food for aflatoxin testing by Public Analysts. However, mould growth is notoriously patchy – so how good is the sampling and does it really protect us from these toxins?

What we have done to help

The Government Chemist team investigated the effectiveness of the current sampling protocol, which sees multiple increments taken and aggregated to form a sample up to 30 kg in size. The sample is then reduced to manageable proportions for testing by statistically controlled sub-sampling and high speed mixing with water.

In this study, six replicate sampling exercises were carried out on a 1.5 tonne cargo of groundnuts (peanuts) known to be contaminated by the toxin-producing mould. The results confirmed that when carried out properly, the elaborate sampling was able to spot the contamination each time.

The full report is available in an open access scientific paper.

The lead author of the paper, Dr Michael Walker, said:

> Importers and Port Health officials work hard together to ensure food brought into the UK is safe to eat by lengthy and painstaking sampling. It is important to be sure this costly work is effective and I am pleased our findings bore this out.

The Government Chemist team would like to acknowledge the kind assistance of Prof Duncan Thorburn Burns, Institute of Global Food Security, Queen's University, Belfast, in the publication of this work.

Reference

Michael Walker, Peter Colwell, Simon Cowen, Stephen LR Ellison, Kirstin Gray, Selvarani Elahi, Peter Farnell, Phillip Slack and D Thorburn Burns, 2017, Aflatoxins in Groundnuts – Assessment of the Effectiveness of EU Sampling and UK Enforcement Sample Preparation Procedures, J Assoc Public Analysts, 45, 1 – 21

News story: CV21 report published

MAIB's report on the investigations of two fatal accidents on board the UK registered yacht CV21 on 4 September 2015 and 1 April 2016 is now published.

The report contains details of what happened, subsequent actions taken, and recommendations made. Read more.

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