Research partnerships and collaborations helping to address the sustainable development goals

Below is an example demonstrating our response to Target 15.1:

By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry-lands, in line with obligations under international agreements

Exeter research is building knowledge and understanding and helping to shape conservation and species management for the future. Some recent examples include transformational outcomes to address the threat which the decline of bee pollinator populations pose to global food production and to insect and plant diversity. Research on bee pollinators' sensitivity to certain pesticides and tolerance to others has been translated into tools (the BeeSafe toolkit) which have been used by Bayer, a world-leading agrochemical company, to: rapidly screen for and accelerate the development of new insecticides that have low toxicity to bees; predict and avoid harmful pesticide-pesticide interactions; and support registration of specific pesticide combinations that are safe for bees. The BeeSafe toolkit was integral to Bayer receiving regulatory approval for a new insecticide in Germany with benefits to pollinators and production.

In addition, By carrying out extensive research into bee behaviours, our researchers have developed a suite of innovative ecological models for use by regulators, policy makers, the agrochemical industry and land stewards. As decision support tools, the models are already delivering clear benefits for pollinators, improving European regulation, reducing risks and guiding land management. These innovative 'BEEHAVE' ecological models of managed and wild bee colony dynamics uniquely enable large scale and long-term assessment of the multiple stressors on bee populations. We also researched loss of habitat, increased pesticide use, invasive species and disease to develop the science needed to underpin national pollinator policy. The three new, complex and biologically realistic models of bee colony behaviour, BEEHAVE, Bumble-BEHAVE and BEESCOUT, can be applied in any landscape and are available to all, from European regulators and global agrochemical companies to individuals such as farmers and beekeepers.

To find out more about Exeter's research contributions to global biodiversity challenges see: Biodiversity · GreenFutures (exeter.ac.uk)