BARELY 3,500

That's the number of Siberian crane and Oriental stork—both endangered species—that winter only on China's Lake Poyang. Thousands have disappeared from the shrinking monsoon lake as it has dried up, leading to a huge loss of biodiversity. Climate is not the only culprit, intensive sand dredging and damming of the Yangtze River also playing a role. The Dragon[1] programme, which has been monitoring the lake for more than 15 years, supplies long time-series of high-resolution and altimetry data from the Sentinel-1, Sentinel-2 and Sentinel-3 satellites. Its aim is to gain deeper insight into the complex dynamics at work and to restore biodiversity. The SWOT mission set to launch in 2022 could further refine observations of this jewel in the crown of global biodiversity.

1. Programme established in 2004 by ESA and MOST, the Chinese Ministry of Science and Technology. Monitoring is performed by ICube-Sertit in Strasbourg.

3rd

CORONAVIRUSES are the cause of deadly epidemics. The 21st century has already seen three outbreaks. In 2003, SRAS-CoV[1] was the first of these respiratory viruses to infect humans. In 2012 and 2013, MERS-CoV[2] spread like wildfire through the Middle East. The particularly contagious and aggressive SARS-CoV-2, responsible for the ongoing COVID-19 pandemic, is therefore the third coronavirus epidemic we have faced.

1. Severe Acute Respiratory Syndrome.
2. Middle East Respiratory Syndrome.

Cost of inaction

A study released by the World Wildlife Fund (WWF) estimates for the first time the economic impact of declining biodiversity in 140 nations. Doing nothing to stem the decline will cost $479 billion a year, or $10,000 billion by 2050, equivalent to 0.67% of global GDP.

Oil slicks

THE 1999 *ERIKA* DISASTER HAS LEFT A LASTING MARK IN OUR MEMORIES. CleanSeaNet, a service operated by EMSA[1], is on constant look-out for intentional discharges or accidental oil spills at sea, relying on the ability of radar imagery to 'see' night and day, independent of fog and cloud cover. Sentinel-1 satellite imagery is downlinked to receiving stations and then processed in real time to reveal vital information like the presence of oil, the size of the spill and its direction of drift. As the time between image acquisition and transmission of alerts to national coastguard authorities never exceeds 20 minutes, these data can be combined with other information to help catch offenders red-handed.

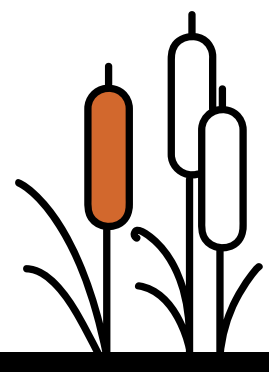
1. European Maritime Safety Agency.

x 2

BIODIVERSITY SUPPLIES TWICE AS MANY GOODS AND SERVICES AS HUMANS EVERY YEAR.

SOURCE: MINISTRY OF THE ECOLOGICAL AND INCLUSIVE TRANSITION

87%



PERCENTAGE of wetlands present in the 18th century lost in 2000. Wetlands are disappearing at a rate three times faster than forests.
Source: IPBES

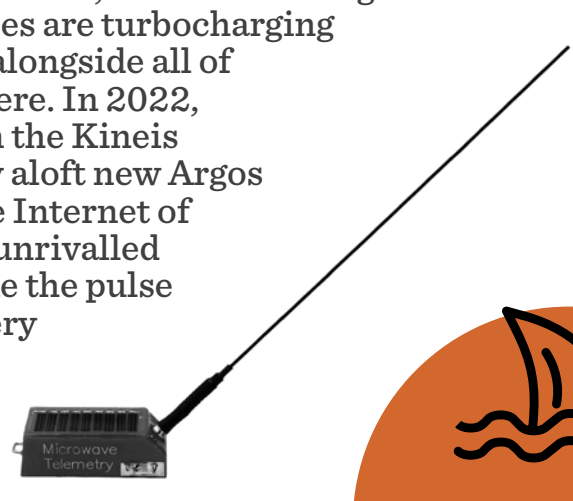
52

CREATED IN JANUARY, the French biodiversity office OFB is encouraging citizens to do their bit for biodiversity. It has listed 52 things people can do every day to preserve nature on its website: **https://agir.biodiversitetousvivants.fr/les-gestes**

150,000

In 1979, the first Argos transmitter was used to tag a humpback whale. Today, small birds like the cuckoo are tagged with miniature transmitters tipping the scales at no more than two grams. There are 150,000 land and marine animals and birds currently carrying such sensors. Every month, CLS[1] tracks 8,000 animals in support of efforts to preserve endangered species like bear, leatherback turtle, dolphin and basking shark. In the space of 40 years, it has built up a priceless record of data. Now, artificial intelligence and big data technologies are turbocharging the systems operating alongside all of the transmitters out there. In 2022, the 25 nanosatellites in the Kineis constellation will carry aloft new Argos payloads tailored to the Internet of Things (IOT), offering unrivalled revisit capability to take the pulse of observed species every 12 minutes.

1. Collecte Localisation Satellites, a subsidiary of CNES.



Illegal fishing

More than 30 fishing vessel monitoring centres around the world use remote-sensing satellites, numerical modelling and geolocation systems to collect data in real time. And their catch is often good. In the Galapagos Islands, a boat was detected fishing illegally in a protected area many miles offshore. When inspectors boarded the offending boat, they found several tonnes of fish in its hold, including 80 shark fins for the clandestine market. Illegal shark fishing proves very lucrative for poachers but is an environmental crime.