



PLAN **TIFIES**

Quercus

Spanish action plan
against illegal trafficking
and the international
poaching of wild species
(TIFIES)

Combating illegal biodiversity
trafficking

A unique opportunity



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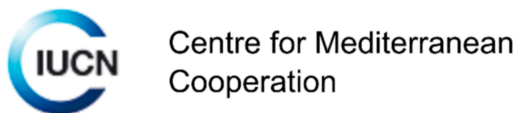
Medio Ambiente y Urbanismo

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Collaborating administrations:



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A historic day

While the text of this *Quercus* supplement was being finalised, on November 16, 2021, three events happened to converge that perfectly illustrate its content: demonstrating Spain's achievements in the fight against illegal trafficking and international poaching of wildlife through the TIFIES Plan (*the Spanish Action Plan against the illegal trafficking and international poaching of wildlife species*). Let's have a look at these three events.

This unique day began at nine o'clock in the morning with the inauguration of the EnviCrimeNet assembly in Madrid. This is one of the most important European initiatives in the fight against environmental crime and is led by the Spanish Civil Guard's Nature Protection Service (Seprona) together with African and Latin American police services.

A little while later, at around eleven o'clock local time, in Kidepo National Park, in Uganda, the fifth day of the Ecoguardas course began, organised by the Ministry for Ecological Transition and the Demographic Challenge (Miteco) for the region's environmental rangers to improve their readiness in the frontline fight against wildlife poaching.

And the top of this historic day, the Spanish Council of Ministers approved a Royal Decree that finally, after 36 years, assigned the main competences of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the most important worldwide in the fight against illegal wildlife trafficking, to the ministry responsible for the environment, Miteco.

Summary

A very serious threat of global magnitude

The Spanish Action Plan against illegal trafficking and international poaching of wildlife species (El Plan de acción español contra el tráfico ilegal y el furtivismo internacional de especies silvestres, or TIFIES) is a great opportunity to curb illegal wildlife trafficking as well as the environmental, social and health consequences that this generates 4

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Cover photo:
Western lowland gorilla
(*Gorilla gorilla gorilla*)
Author: Luis Arranz

Quercus

Journal of the Observation, Study and Defence of Nature. Founded in 1981.

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PUBLISHED BY

 Drosophila ediciones s.l.
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28180 Madrid
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BACK ISSUES

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Telf. +34 91 635 03 75
Móvil:+34 635 085 124

Printer: TALURO GRÁFICA

Distribution:

Sociedad General Española de Librería, S.A.
Avda. Valdelaparra, 29. Políg. Ind. Alcobendas - 28108 Madrid
Telf. +34 91 657 69 00



Legal deposit: M-1778-82 / ISSN: 0212-0054

This supplement is distributed together with issue 431 of *Quercus* (January 2022).

Printed in Spain



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WILDLIFE TRADE AND TRAFFICKING

A very serious threat of global magnitude

The environmental, social and health consequences caused by the upsurge and virulence of wildlife trafficking, both legal and illegal, have forced the international community to make an extra effort to stop it. Spain supports this strategy, and in 2018, as part of the *EU Action Plan against wildlife trafficking*, it approved the *Spanish Action Plan against illegal trafficking and the international poaching of wildlife species* (Plan de acción español contra el tráfico ilegal y el furtivismo internacional de especies silvestres; TIFIES Plan). It was the first EU country to approve a national plan in this field.

In 2018, the Spanish Cabinet approved the TIFIES Plan, the first in the EU, which is important, for example, for the survival of species and subspecies of cheetahs, reptiles, and rhinoceroses.

Every year millions of plants and animals are trafficked internationally to meet the demand of an expanding global market. It is estimated that up to 18% of the world's 31,745 vertebrate species are now threatened by being caught up in this trade.

But as many of these become scarce, traffickers are constantly looking for similar species to introduce into the market to meet the demand, which could endanger a further 3,196 species that are not currently at risk. It is estimated that, if this rate of trafficking continues in the

coming years, up to 30% of vertebrates could be at risk of extinction due to this market.

Beneath the legal trade is a significant illegal business linked to international poaching, which generates an estimated organised crime profit of between \$72 billion and \$216 billion a year. It is the third most lucrative criminal activity in the world, trailing only narcotics and illegal arms trafficking. This illicit activity increases insecurity as well as socially and economically destabilising the local communities in which it originates, as these are subjected to the tyranny of the international mafias responsible for it.

This illegal trade, together with the associated logging and poaching, have resulted in many species now being threatened with extinction, and even worse, in the extinction of iconic species such as the northern white, West African black, and Vietnamese rhino subspecies; and tropical birds such as the Spix's macaw and Javan and Balinese starlings. For all these reasons, this activity is considered to be one of the main global threats to biodiversity.

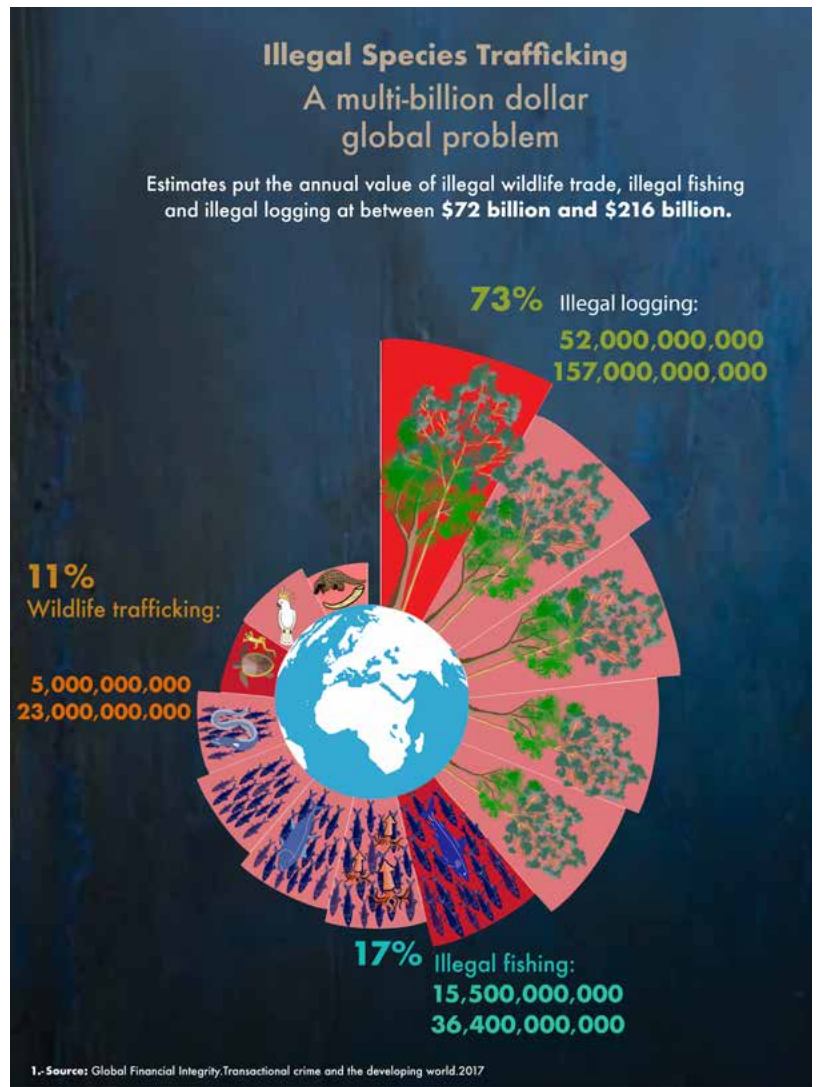
The situation became so worrying that in 2015 the United Nations (UN) had to intervene, passing Resolution 69/314, which warned of its seriousness and called on all countries to act quickly. Since then, the UN has passed four more resolutions on this issue, the latest being in 2021. As a result, this threat has started to appear on the agendas of international bodies and key world leaders, and several international conferences have been organised, most recently in London in 2018, and Lima in 2019.

The European Union (EU) was singled out in UN reports as one of the preferred territories for illegal wildlife trafficking. It reacted quickly, and in 2016 approved the *EU Action Plan against wildlife trafficking*, subsequently incorporating its objectives into the recent European Green Deal.

Spain in the spotlight

Due to its geo-strategic position and its cultural and socioeconomic links with Latin American and African countries, Spain was identified in most of the reports as an important entry and transit country on the illegal trafficking routes. For example, it is the main destination for reptile skins, accounting for 31% of the specimens seized around the globe. The Spanish response to combatting this threat was greatly desired and hoped for at the international level.

Spain quickly joined the international efforts, and on 10 April, 2018, as a further development of the European plan, the Cabinet approved the ambitious *Spanish Action Plan against illegal trafficking and the international poaching of wild species* (TIFIES Plan), becoming the first EU country to approve a national plan in this field.



The TIFIES Plan has three priorities and is structured into 26 specific measures. The first priority is to prevent the illegal trafficking and poaching of wildlife, tackle its root causes, and involve public authorities and civil society in the issue. The second focuses on implementing and enforcing rules more consistently and combating illegal activities more effectively. The third priority is to work with the countries of origin, consumption and transit of this illegal trade and international poaching.

Since its approval, the Ministry for Ecological Transition and the Demographic Challenge (Miteco), as the driving force and coordinator of the plan, has developed and organised many of the plan's actions in collaboration primarily with the Civil Guard's Nature Protection Service (Servicio de Protección de la Naturaleza; Seprona), the Ministry of Foreign Affairs, the European Union and Cooperation, the Ministry of Science and Innovation, certain autonomous communities, including the Regional Government of Andalusia, environmental NGOs and private companies.

In addition to the impact on biodiversity, such excessive trafficking increases insecurity, socially and economically destabilising the local communities in which it originates.

Poaching remains one of the main threats to lions.



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ACTIONS AIMED AT PREVENTION AND THE INVOLVEMENT
OF THE AUTHORITIES AND SOCIETY

Together and in a coordinated manner: working better to combat biodiversity trafficking



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International poaching continues to decimate elephant populations in Africa. In the last ten years Tanzania has lost 60% of its elephants.

Strengthening and reinforcing the work of Seprona, setting up the National Central Office for the analysis of information on illegal environmental activities, working together with the Jaguar network of police specialised in environmental crimes in Latin America and the European Union, creating the figure of the TIFIES Plan collaborating entity, three LIFE+ projects and transferring the administrative authority of CITES to Miteco and the scientific authority to CSIC have been some of the most important actions for establishing the rest of the TIFIES Plan's activities and mandates.

After the approval of the TIFIES Plan, the first step was to improve and adapt the internal organisation of the various authorities and strengthen the collaboration between these. The first action was to enhance and reinforce the work of Seprona with the 2018 signing of a new collaboration protocol for operational procedures between Miteco and the Civil Guard, which included strengthening the fight against illegal wildlife trafficking. This has enabled Miteco to help equip and improve Seprona's training and operational capacity.

So that the administrative structure of Seprona was in line with the new objectives and challenges, in 2020 the National Central Office for the analysis of information on illegal environmental activities (NCO) was created within its headquarters, a measure included in the TIFIES Plan and co-funded by the LIFE+ Guardians. The functions of this office are to boost coordination and information exchange and to carry out intelligence analysis and outreach.

The NCO has organised a network of collaborators (liaisons) from various bodies and institutions, including the State Attorney General's Office (environment and urban planning), police forces, administrative control bodies, other state bodies at the central and regional level, NGOs, species rescue centres, and other interest groups.

The same office holds regular meetings with these liaisons and has set up an email address (ocn-medioambiente@guardiacivil.org) to facilitate information sharing in terms of needs, the detection of emerging threats, the dissemination of good practices, and so on. It also publishes the *Environmental Intelligence Bulletin*, which compiles contributions from all the collaborators. Since its creation, it has played a key role and has been very well received both in Spain and beyond, becoming a benchmark as well as a point of contact and support.

The Jaguar Network and 23 collaborators

Another noteworthy action has been the support given by the TIFIES Plan to the Jaguar network of police specialised in environmental crimes in Latin America and the European Union, established in 2019 thanks to a Civil Guard initiative and which is currently coordinated by Seprona. This network acts as a platform for exchanging intelligence and facilitating communication between investigative units. It is part of the EU's Impact (European Multidisciplinary Platform



Chess set made of ivory. The illegal trade in this product costs the lives of more than 20,000 elephants every year.

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Against Criminal Threats) programme against environmental crime and, together with the PACCTO (Programme of Assistance against Transnational Organised Crime), also from the EU, it coordinates operations between Latin American and European countries.

A third activity focused on getting society's organisations and entities involved in implementing the plan, as it was obvious that the authorities could not do this alone, particularly the task of raising awareness in society and reaching those areas that were otherwise out of reach.

This approach involved the creation of a figure that would officially and publicly recognise the entities that would help the administrations to achieve the plan's objectives. In 2019, the first 23, referred to as collaborating entities, were appointed through a resolution of the Miteco Secretary of State for the Environment. These collaborating entities included well-known NGOs, scientific societies, research centres and universities, associations and companies; all of which were identified and selected for their experience, recognised prestige and sectoral impact on the objectives and actions of the TIFIES Plan.

Finally, an action that has impacted one of the most useful and important global tools for combating illegal wildlife trafficking, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), was the Spanish Council of Ministers approval, on 16 November, 2021, of a Royal

Decree that came into force in January 2022 establishing the new national authorities for the Convention.

Miteco became the administrative authority and main management

body, and the scientific authority, which until then had been the responsibility of Miteco, was transferred to the Spanish National Research Council (Consejo Superior de Investigaciones Científicas; CSIC), which reports to the Ministry of Science and Innovation.

The implementation of this convention in Spain had been under criticism for some years, and this resolution was a historical win for the Spanish and international conservation



Logos identifying "collaborators" with the TIFIES Plan and the Jaguar network of police specialised in environmental crime in Latin America and the EU.



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The creation of the National Central Office for the analysis of the information on illegal environmental activities and the shift of management authority from CITES to Miteco are some of the administrative developments to improve the fight against the illegal trafficking of species. Above, seizure of skins by Seprona. On the right, presentation in Madrid, on 4 December, 2018, of the LIFE+ Guardians project, with the participation of Teresa Ribera, the Minister for the Ecological Transition and the Demographic Challenge, and Fernando Grande-Marlaska, Minister of the Interior (both in the centre of the image).

movement. The issue in Spain was that the principal authority for CITES rested with the Ministry of Industry, Trade and Tourism (Mincotur), unlike in the other European countries and the vast majority of signatory countries, where this was the responsibility of the ministerial department with competence in environmental matters. Moreover, the scientific authority for the convention lay with the national research bodies of each country, and not, as in Spain, in Miteco, a government ministry.

The reason for this peculiar dysfunction was due to the fact that when Spain joined CITES, almost forty years ago, it was in a period of transition with incipient environmental policies and hardly any administrative structures in this area, so that greater emphasis was placed on the "commercial" aspect of the agreement than on the protection of biodiversity, which was its main purpose, and obviously the scientific aspect was also overlooked.

This anomalous state of affairs led to major disagreements and mismatches between the various authorities. This not only hindered the functioning of the agreement, but also prevented many of the actions envisaged in the TIFIES Plan from being implemented, meaning that the situation had to be resolved without delay.

Finally, and after complex negotiations, on 28 April, 2020, a Royal Decree was approved on the new structure and functions of Miteco, which included assigning the main CITES authority to this body, specifically to its Directorate General for Biodiversity, Forests and Desertification.

The European Commission's financial contribution

In order to financially endow the authorities and entities involved in the TIFIES Plan, an important step was the support for and promotion of LIFE+ projects for funding by the European Commission.

The first was the LIFE+ Guardians project, whose main beneficiary is the Spanish

Ornithological Society (SEO/BirdLife) and whose partners and co-financiers are the Civil Guard, the Andalusian Regional Government, the Portuguese Society for the Study of Birds (Sociedade Portuguesa para o Estudo das Aves) and Miteco. The main objective of the project is to improve the effectiveness and efficiency of actions aimed at combatting environmental crime in Spain and Portugal, especially those committed against wildlife. The idea is also to participate in various legal proceedings for species trafficking offences. It involves several capacity-building actions, training courses and outreach activities that have an impact on the fight against illegal species trafficking.

The second LIFE+ project approved, in 2020, is SATEC (Strategic Approach for Tackling Environmental Crime), coordinated by Tragsatec on behalf of Miteco. Here the partners are Seprona and its counterparts in Austria, Germany, Italy, the Netherlands, Belgium and Slovakia, and the main objective is to consolidate and develop the EnviCrimeNet network, consisting of environmental enforcement authorities and environmental crime investigation experts in the EU. The aim is to facilitate criminal investigation by training agents and coordinating activities between the EU and neighbouring countries (Ukraine and Belarus), as well as Latin America and Africa. At the last EnviCrimeNet assembly, held in Madrid in 2020, it was agreed that Seprona would head up the network for the next two years.

LIFE+ SATEC also supports other networks and entities, such as Europol, CEPOL and the European networks specialised in prosecuting illegal activities committed against the environment, such as the network of Prosecutors for the Environment (ENPE), the network for the Implementation and Enforcement of Environmental Law (IMPEL) and the European Union Forum of Judges for the Environment (EUFJE).

Finally, there is LIFE SWIPE (Successful Wildlife Crime Prosecution in Europe), approved in 2018 and led by WWF Spain. Its main objective is to raise the number of wildlife crimes investigated, reported and prosecuted across Europe by 25%.

POLICE ACTION AND SEIZURES

More police operations and seizures with **better training and more science**

Targeted training for law enforcement agents and collaboration with science to develop new and more effective technologies for investigation and seizure operations are two of the important TIFIES Plan measures to help curb the escalation of illegal wildlife trafficking. The geo-strategic situation of Spain, which appears to be one of the countries with the greatest increase in this type of crime, makes these key advances in the latest police and seizure operations.



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For years, NGOs and international reports have been warning that Spain was one of the gateways and transit points for the global illegal wildlife trade. For example, the number of live animals seized in Spain in 2017 rose to 1,247 specimens of at least 150 species.

The number of seized and abandoned animals that have entered rescue centers, had also increased. In just four years in Catalonia, 15,566 specimens were collected, most of them reptiles, and there were surprisingly high numbers of dangerous species, such as pythons and boa constrictors.

In this context, the Spanish Environmental Prosecutor's Office itself had also warned of the increase in the number of cases of animals being reported as captive-bred, when they actually came from the wild, in order to avoid the restrictions and controls imposed

Image from a specialised Seprona training and capacity-building course in the fight against illegal species trafficking organised by Miteco. This training programme has contributed to successful police operations.

by the authorities, which are more lax and permissive in the case of captive-bred animals.

It was clear that police operations needed a major boost, and under the TIFIES Plan two novel elements were introduced into the operations. One was the implementation of specific training courses to provide prior preparatory training for the development of police operations, and the other was to seek the collaboration of science to assist with the technology used in the operations.

So, between 2018 and 2021, Miteco, as part of a specific training and capacity building programme under the TIFIES Plan, organised 24 highly specialised courses for 522 Seprona agents (plus another 21 agents from third countries), some of which were very specific and run in advance of the operations being carried out. The courses addressed topical issues related to illegal species trafficking,

such as identifying and controlling ivory, CITES timber, the internet trafficking of flora and fauna, and illegal eel trade.

The contribution of science

Another of the new approaches taken under the TIFIES Plan was to seek the complicity of scientific research in the development of new technologies to combat this threat. Two of these stand out. The first relates to the trafficking and trade in elephant ivory. For example, between 2014 and 2017, Spain authorised the re-export to Asian countries of at least 453 pieces of elephant ivory, 111 of which were carvings and 342 raw tusks.

In this context, a UN study was released in 2016 which revealed that legal commercial transactions in ivory were dwarfed by the hundreds of tonnes traded annually as a result of poaching and illegal trafficking, suggesting that it had become an international investment and speculation commodity. The report identified the EU as a key location for this trade.

In the EU, although trade in ivory is subject to control and limitations under the CITES convention, domestic trade in ivory antiques,

defined as carvings from before 1947, is exempt from this control. The UN report noted that this exemption was a "loophole" that facilitated the laundering of ivory from poaching and illegal trade and ultimately supported a speculative black market that continues to cause a significant decline in the global elephant population. More than thirty African governments, the world's leading NGOs and the International Union for Conservation of Nature (IUCN) called on the EU to tighten its restrictions on the trade of worked ivory.

To date, the usual practice in Spain for a piece to be considered an antique, and therefore exempt from CITES control, has been based on it being endorsed by a certificate of antiquity issued by an antique dealer. However, this unique approach is discouraged by the EU guidance document on the subject, which specifically states that such verification "should not be carried out, for example, by the buyer or seller, or by any other intermediary, such as an auction house, involved in the sale of the specimen". Often the antique dealers are the sellers themselves, so there is a clear

To prevent recent elephant ivory from being camouflaged as old and illegally trafficked, Miteco, in collaboration with the National Centre of Accelerators of the University of Seville, the CSIC and the Junta de Andalucía, dates the age of the pieces using radio isotopes.



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RESCUE, REHABILITATION AND REINTRODUCTION CENTRES

THE IMPRESSIVE RECORD of police operations is one of the most notable successes of the TIFIES Plan. It is hoped that if this continues at this pace, it will weaken the international trafficking networks. However, its increase has had a collateral effect: the appropriate management of the confiscated live animals.

To date, some of the specimens have been housed in a number of centres, mostly zoos and private facilities, which had collaboration agreements with the former CITES management authority, Mincotur. In 2021 they held up to 1,494 specimens of some 190 species.

The reality was that once they entered one of these centres, they were destined to remain there indefinitely, so the facilities reached their maximum capacity. In many cases, the specimens seized by the police had to be left in the custody of the offenders, who continued to profit from them and trade their offspring or the seized animals themselves.

Furthermore, the centres indicated that the funds provided by the authorities were insufficient to maintain the animals. This was a particularly worrying situation and was a constant complaint of the NGOs. For this reason, Miteco, in its new role as the main CITES authority, is working on the creation of a new network of rescue centres for CITES

conflict of interest. Instead, objective scientific methods are recommended.

Carbon 14 for detecting the age of ivory

Aware of the problem and alerted by studies suggesting the potential for fraud in relation to supposedly antique ivory items, the TIFIES Plan envisaged the application of a scientific method to ensure that only genuine antiques were actually being traded. To this end, Miteco requested the collaboration of the Radiocarbon Dating Service of the National Centre of Accelerators (Centro Nacional de Aceleradores; CNA), a centre affiliated to the University of Seville, the CSIC, and the Andalusian Regional Government, to date the ivory supposedly considered antique. The technique uses accelerator mass spectrometry to measure the concentration of the radioisotope carbon-14 in the collagen of the ivory.

This technique is based on the fact that since 1945, when various nuclear tests took place, large quantities of carbon-14 have been injected into the atmosphere, thereby increasing its concentration in all living beings and allowing the very precise discrimination of samples originated before or after 1955.

As part of the Seprona operations against illegal ivory trafficking (Operation Thunderball), samples of 18 ivory carvings were sent to the CNA because they were offered for sale as supposed antiques, that is, from elephants that died before 1947. The results showed that the majority (17 of the carvings, 94.4%) came from elephants that were either still alive until recently or after 1955; and that all the carvings (10) that were certified by antique dealers, as mentioned above, were from after 1947. All the certificates of antiquity were found to be inaccurate when checked against the carbon-14 test. This highlighted the weakness of the system for verifying the age of a piece based exclusively on visual expertise. As a result, a new system



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is being developed to combine this with the aforementioned scientific method.

The second action involving the application of science was developed to combat the illegal trafficking of protected timber, which accounts for 80% of the volume of wildlife trafficking worldwide and threatens the persistence of forest ecosystems and the last primeval forest masses on the planet.

x400 magnification used to detect illegal timber

According to the United Nations Environment Programme (UNEP), illegal logging is the number one global environmental crime. In 2016 alone, it generated between \$50.7 billion and \$152 billion. In tropical regions such as the Amazon Basin, the Congo Basin and Southeast Asia, illegal timber on the market can represent between 50% and 90% of the total volume produced. In this context, and because of its geographical location, Spain is also a hotspot for the international illegal trade in tropical timber.

These woods are illegally introduced into trade flows together with shipments of “presumably legal timber”, taking advantage of the fact that detecting them is particularly complex, largely because of the difficulty of pinpointing this timber in the field or

Thanks to the TIFIES Plan, the School of Forest Engineering and Natural Resources (Escuela Técnica Superior de Ingenieros de Montes, Forestal y del Medio Natural) in Madrid, in collaboration with Miteco, developed an innovative early warning guide for identifying CITES timber that can be attached to mobile phones, allowing it to be used by field agents.

species, coordinated by a state reference centre, as well as reorienting the rescue centres. The intention is to make them three-R centres: rescue + rehabilitation + reintroduction.

The main function of the centres will, of course, be rescue, i.e. the reception, care and upkeep of confiscated animals, but special consideration will also be given to their rehabilitation, whenever possible, with a view to adapting them for their return to the wild and their subsequent reintroduction into their natural habitats in their countries of origin. Collaboration will be established with rescue centres in those countries as part of the reintroduction process.

In cases where reintroduction is not possible, Miteco is working to incorporate the animals into the European

Association of Zoos and Aquariums' (EAZA) European Endangered Species Programme (EEP), or to include them in scientific and research programmes aimed at the conservation and study of the species. To achieve this, the collaboration of the secretariat of the Iberian Association of Zoos and Aquariums (AIZA) and its network of contacts is essential.

In this vein, Miteco has quadrupled the funds available to support rescue centres through a 2021 call managed by Fundación Biodiversidad, which will benefit “three-R CITES rescue centres” over the next four years. This work will also need to be complemented by outreach and awareness-raising activities on the problem of wildlife trafficking.

at border points, based on conventional techniques that involve identifying the general structure of the wood using lenses with only x10 or x12 magnification. In addition, to confirm this, specialised laboratories, and often DNA techniques, were required. This greatly complicated and discouraged these control and inspection tasks.

In 2019, the School of Forestry Engineering and Natural Resources (Escuela Técnica Superior de Ingeniería de Montes, Forestal y del Medio Natural) in Madrid, with the support of Miteco, developed a new tool for overcoming the identification issue. It is an early warning guide for CITES-listed timbers and contains macroscopic illustrations of the main distinctive anatomical and structural features of each species, taken at x24 and x400 magnification. Equipped with this extremely visual guide and the aforementioned x400 magnifying tools, which can be attached to the camera of any mobile phone, non-specialist personnel can identify CITES-protected tree species on the ground.

Forestry officers, logging concession officers, customs and police authorities can now identify the timber on the spot and determine whether or not it corresponds to the species declared in the documentation and, if necessary, trigger an early warning. This guide is available free of charge in Spanish and English versions on the Miteco website.

Spain, a gateway for the illegal entry of reptiles

In general, the implementation of the TIFIES Plan has given a major boost to operations against wildlife trafficking. In recent years, the annual reports of both the Environmental Prosecutor's Office and Seprona have indicated that the number of CITES specimens seized has risen by 91.4% compared to previous periods.

Reptiles are among the most illegally trafficked groups in the world, including in Spain, where several operations have been carried out. In 2018, Operation Coahuila took



The poachers employ a varied repertoire of weapons, from rifles with thermal scopes to simple crossbows.

place, in which more than 1,100 specimens of various species of tortoises and more than 750 eggs were seized, and the largest illegal breeding site of these reptiles in Europe was dismantled. The seized specimens included 14 species considered critically endangered by the IUCN, such as Southeast Asian box turtles. Some endemics from Mexico, the United States and Canada were also seized, as well as specimens of the Greek tortoise, which is classified as vulnerable.

In another intervention at Barcelona airport, 76 juvenile Aldabra giant tortoise specimens, considered endangered by the IUCN, and 113 specimens of the critically endangered radiated tortoise were seized from luggage. In 2018, Operation Kingcorn in Catalonia saw the seizure of 20 reptiles, including a specimen of the very rare Komodo dragon, a species confiscated for the first time in Europe.

In 2019 and 2020, several actions were conducted in relation to the illegal trafficking of mammals, most notably Operation Taxideralia, where more than 200 specimens were seized in several illegal taxidermy workshops, including African lions, white rhinoceroses, Bengal tigers, hippopotamuses and African crocodiles. Operation Iohannes involved the seizure of 29 elephant ivory carvings and two hippopotamus tusks from a dealer in Santa Cruz de Tenerife.

But the largest was Operation Celacanto, where 2,296 specimens of seventy species of protected fauna were seized from animal dealers and antique shops. In Operation Thunderball, 543 pieces of ivory were seized, and finally, in Operation Fildish.1, carried out in collaboration with the Portuguese authorities, 334 pieces of ivory

In 2018, Operation Coahuila took place, in which more than 1,100 specimens of various species of tortoises were seized, and the largest illegal breeding site of these reptiles in Europe was dismantled.



SPECIES TRAFFICKING AND PLANETARY HEALTH

Fernando Valladares, CSIC Research Professor

THE ILLEGAL and uncontrolled **MOVEMENT** of wild species generates empty and dysfunctional ecosystems that are unable to cope with today's major environmental impacts, such as climate change, and they pose increasing threats to human health. Pathogens associated with illegally traded wildlife span all possible taxonomic origins, affect most vertebrate taxa and can cross species barriers, including to human and domestic animals. All kinds of ectoparasites and endoparasites, bacteria, fungi, protozoa and viruses have been identified in illegally trafficked wild species and their transmission to humans has been documented on numerous occasions.

The magnitude of the health risks associated with the circulation of pathogens depends on both their pathogenicity and the likelihood of persistence in the new environment, but they are generally the main cause of most emerging human diseases. In reality, we have to rely on estimates because published health assessments of illegally traded wildlife are very rare, and cases where confiscated wild species have been subjected to thorough clinical examination are a tiny percentage of the total volume of wildlife traded.

What we do know is that the defaunation of ecosystems generates a cascade of ecological impacts, many of which end up affecting not only the way these ecosystems function but also the very health of humans and their domestic animals in indirect but important ways. For example, by reducing the biodiversity of ecosystems through targeting species for trade, we reduce the effectiveness of the three main mechanisms by which biodiversity reduces the risk of zoonosis, meaning animal-borne diseases that jump to humans.

On the one hand, we simplify the web of interactions between species, making it more likely that zoonotic species numbers will shoot up demographically because they are no longer regulated by extracted species, which increases the risk of pathogens being transferred to humans. On the other hand,

reducing diversity within related groups of species reduces the effectiveness of the dilution mechanism, whereby similar species that share the pathogen lead to a decrease in the overall amount of the pathogen because they are not all equally favourable for its development.

The importance of the dilution mechanism in reducing the risk of certain zoonoses has been well studied for West Nile virus, which is hosted by birds, for hantaviruses, which are hosted by rodents, and for bacterial diseases such as Lyme disease, which are shared by rodents and marsupials such as opossums. In all cases, decreasing the number of species that share the pathogen increased the incidence of the disease in human population in the area.

And finally, the finest degree of biodiversity, that of genetic diversity within the same species, is also a barrier to contagion and reduces the risk of zoonosis, although this is largely lost when the genetic diversity of populations of reservoir animals or pathogen hosts is impoverished.

Vegetation structure and dynamics are affected when trade affects herbivore species or when defaunation deregulates herbivore populations. These vegetation changes can be at a truly surprising scale and affect the major cycles of matter, altering the ecosystem's capacity to mitigate climate change by fixing atmospheric carbon, and impacting the hydrological dynamics by modifying the albedo and transpiration of large areas of land.

The regulation of vegetation by elephants is well known, as is the trafficking of their tusks and even their meat, which is used to produce so-called medicines. The illegal trade in elephants costs the lives of more than 20,000 specimens every year. It is not difficult to imagine the colossal disruption of ecological processes that the illegal hunting and trafficking of megafauna entails, but the complex and very close interactions between the different species that make up an ecosystem means that no illegal capture or trafficking is exempt from ecological impacts and any activity of this type poses a health risk to the human population through a variety of mechanisms.

The consequences of the increasing illegal trade in wildlife illustrate the close interconnection between humans, animals and the ecological integrity of the ecosystems that house them.

These multiple and important consequences underline the need for an interdisciplinary and comprehensive approach to trafficking and the illegal trade in species. It is precisely this approach that is at the heart of planetary health programmes and the United Nations One Health.



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Rescue and relocation of Greek tortoises seized in a Seprona operation. Miteco is working on the creation of a new network of rescue centres for seized specimens, which will include rehabilitation and return to the wild.



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Since 2018, six operations have been carried out against elver trafficking (Askea-I and II, Lake, Celacanto, Eel-illicit and Ave Fénix), involving the arrest and investigation of almost 400 people and the seizure of more than 1,500 kilos of elvers.

Most of the seizures were made in the cargo terminals of Madrid and Barcelona airports, where shipments of live elvers arrived, supplied with oxygen to ensure their survival. These were part of an international operation coordinated by Europol in which 24 European countries participated.

In addition, parallel actions were carried out against illegal fishing in the Bay of Biscay and the mouth of the Guadalquivir, dismantling 54 “glass eel platforms”, which not only caught the elvers, but also other species of fishing interest.

In relation to illegal timber trafficking, Operation Quercus was carried out in 2019, the first in Spain, resulting in the arrest and investigation of 71 people and 608 inspections in businesses and facilities dedicated to the import and export of timber, furniture manufacturing and sawmills. Inspections carried out in two companies in the timber sector found wood from Palo Santo (*Bursera graveolens*) and grenadilla (*Dalbergia melanoxylon*) trees, illegally imported from Brazil and Africa. In the course of the operation, information was obtained from Brazil, and Portugal, Italy and Romania all participated through the European EMPACT initiative.



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Images of Seprona's Operation Quercus, the first in Spain against illegal timber trafficking, which resulted in the arrest and investigation of 71 people as well as 608 inspections.

from Portugal were confiscated in Huelva and 21 ivory carvings and two elephant tusks were seized in Lisbon and Porto.

Another of the world's most trafficked species is the European eel. There are several international networks specialising in smuggling these animals out of the EU to Asian markets, for fattening and subsequent sale, as part of a million-dollar illicit business and contributing to the extinction of the species. Since 2010, the export of these eels from the EU has been banned and they are considered critically endangered by the IUCN.

Illegal trafficking of animal meat for human consumption

Another interesting operation with ramifications outside Spain was Fennec, coordinated by EUROPOL and involving Portugal, Slovakia and Morocco. Ten members of an international network of illegal species trafficking were arrested and some 200 animals, including birds, mammals and reptiles, were seized. For the first time, this investigation established the existence of an emerging market in Africa, which, through Morocco, demands a large number of exclusive animals that are illegally imported.

REINTRODUCTION, A PENDING CHALLENGE

A DRAMATIC EXAMPLE of when seized animals were abandoned was the case of 34 Fijian iguanas (*Brachylopus* sp.) confiscated by Seprona in 2017. These iguanas are endemic to the islands in Oceania and some are in serious danger of extinction. Upon learning of the seizure, the Fijian, Australian and US authorities in charge of their conservation programme requested that they be returned to be incorporated into their reintroduction projects.

Miteco intervened and made a number of arrangements with the conservation authorities of those countries as well as local NGOs, recommending their transfer first to San Diego Zoo (California), a facility specialised in their care and maintenance, followed by incorporating them into the recovery and reintroduction programme in their natural habitat in Fiji. For the first time in our history, animals seized in Spain for illegal trafficking were to be returned to their country of origin.

However, Mincotur, as the CITES authorities at the time, did not authorise the movement of the animals, so the return operation was aborted. Despite the good level of care they received at the centre where they were kept, only seven of the iguanas are still alive. Fortunately, Miteco, as the new CITES lead authority, has resumed the operation to return them to their natural habitat.



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Cases with a happy ending

The restitution of the damage caused to species by illegal trafficking and poaching is one of the most complex and difficult goals of the TIFIES Plan, and one of the least successful. But it is encouraging to see how some cases have a happy ending. There are two, involving a lioness and elvers, and both show that these actions are useful and feasible when there is the will and the power is in the right hands.

The first "happy ending" was Miteco's 2018 collaboration with the APP organisation Primadomus to re-home an African lioness named Nala, to the wild in South Africa. She had been rescued from an illegal circus animal breeder in France in a deplorable state of health and physical condition. Nala was first sent to the APP-Primadomus rescue and rehabilitation centre in Villena (Alicante), and thanks to their effort and determination she managed to recover. She was then transferred to a 1,250 hectare sanctuary in South Africa known as Lionsrock, managed by the NGO Four Paws.

The second "happy ending" is that of the elvers. Until recently, the majority of those seized at airports died when the oxygen in the plastic bags in which they were transported by traffickers ran out. To solve this problem, in 2019, and as part of the TIFIES Plan, Miteco and Seprona established an action protocol whereby, when Seprona seized elvers, it notified Miteco, who, in less than 48 hours (the time in which the oxygen runs out) provided emergency means to transport the elvers to one of the eight aquaculture centres it has agreements with in Spain.

There they remained in suitable tanks until their reintroduction into the natural environment, after being genetically identified and receiving judicial authorisation for their release.

In 2020 and 2021, some 100,000 elvers that were being housed at the Institute of Agrifood Research and Technology (Instituto de Investigación y Tecnología Agroalimentarias; IRTA) in Tarragona and at the School of Forest Engineering and Natural Resources (Escuela Técnica Superior de Ingeniería de Montes, Forestal y del Medio Natural) in Madrid were released in the Ebro Delta Natural Park, in the lower Guadalquivir, in the Rocina stream, and in the Bidasoa River.

In the framework of the Jaguar network, several international joint operations have been carried out with Latin American police under the TIFIES Plan. These include Alegrete, on the trafficking in birds in Brazil; Arquímedes, on the illegal import/export of timber between Brazil and Europe; Culebra V, on the trafficking in reptiles between Peru and several EU countries; Auratus, on the trafficking in various species between Costa Rica, Germany, Spain and Chile; Bugs, on the trafficking in species between Costa Rica, Panama and the EU; and Europol's Nautilus, related to trafficking in reptiles from several Latin American countries.

Finally, thanks to TIFIES, a new type of illegal species trafficking has been detected,

namely *bushmeat* for human consumption. Miteco received information that in recent years bushmeat had been detected entering illegally through several European airports, mainly from African countries. For example, it was estimated that 270 tonnes/year was entering through Paris airport and 180 tonnes/year through Brussels airport. As a result, Seprona and the Civil Guard's Customs Service were alerted at the airports, and soon *bushmeat* consignments began to be detected. As part of Operation Thunderbird, the carcasses of armadillos, colobus monkeys, porcupines and pangolins, all from Equatorial Guinea, were seized in several suitcases at Madrid airport.

In the inset, images of the seizure of 34 iguanas of species endemic to the Fiji Islands and the release of eels also previously seized.



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SUPPORT ACTIONS IN THE COUNTRIES OF ORIGIN

Socially and environmentally relevant aid

Helping the countries where this problem originates is key to the success of the TIFIES Plan. Many request this help and assistance mainly to get their rangers better prepared to deal with poachers, as they are often at a disadvantage. They also request assistance for local communities, as wildlife trafficking is a temptation for economies with few alternatives for development.

Eco-guard training has been one of the main actions of the TIFIES Plan carried out in the countries where poaching occurs.

Although this task is sometimes little understood and underappreciated, it is a priority for the TIFIES Plan, and despite the internal obstacles encountered, the support actions provided in the countries of origin are yielding very good results.

Miteco collaborated with a major EC initiative, the EU regional biodiversity conservation strategies *Larger than elephants* and *Larger than jaguars*. These strategies identify priority areas for action in Africa and Latin America, referred to as Key Landscapes for Conservation and which

have been incorporated into the TIFIES Plan as Key Biodiversity Areas (KBAs).

In the case of Africa, and within these KBAs, there are different types of protected areas that include community and private conservation concessions or *conservancies*, which together occupy an area larger than that of all the national parks. In countries such as Tanzania, these cover up to 21% of the national territory. As they have contributed significantly to expanding the area of land dedicated to conservation beyond national parks and state reserves, their maintenance is considered a top priority.



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The workshop organised in Seville, in 2018, defined the guidelines for good practices in terms of species management and the fight against poaching in Africa.

These concessions are managed with wildlife-oriented natural resource use planning that includes limitations on agro-livestock use together with socioeconomic trade-offs, usually social investments in local communities. In addition, their managers must employ, equip and train different types of rangers (*game* and *village scouts*, *eco-guards*, *community rangers*, etc.). This provides employment for the local people and acts as a deterrent to poachers.

Local communities involved in wildlife protection

Within these concessions, in addition to tourism, hunting is a key factor for their sustainability, as it is the main generator of economic resources and local employment, as well as the principal source of income for biodiversity conservation through anti-poaching surveillance. In addition, local communities who share in the benefits prefer their land to be used for wildlife rather than other purposes. For this reason, and because of their effectiveness and significance in terms of biodiversity conservation, the EU Biodiversity Strategy, and even the recent 2021 UN resolution on species trafficking and poaching, have hailed these concessions as a success.

However, the practice of hunting certain African species received a great deal of public attention at the global level because of a lack of consensus among CITES authorities, NGOs and other sectors. As a result, hunting became the subject of criticism and debate that not only harmed this activity, but also the maintenance of the concessions and the conservation incentives in these areas.

To solve this problem, one of Miteco's first steps was, in 2018, to organise an international workshop in Seville to draw up guidelines for the management of these species and the concessions agreed upon by the authorities, the managers of the concessions, scientists,



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and ecologists working in Africa. The workshop focused on the management and conservation of the most emblematic and vulnerable species, such as lions, leopards, elephants and rhinoceroses, as well as on the best techniques for combatting the common enemy, poaching.

It was the first time that the scientific community, the hunting industry and environmental associations, together with national wildlife authorities, were brought together in an international forum for this purpose. All the participants considered the workshop to be a very useful exercise and several of them saw it as the best effort made in recent times towards constructive dialogue on the issue.

On the final day, the document on good practice guidelines for species management and anti-poaching in Africa was adopted, containing the following principles: the harvesting of specimens should not be detrimental or affect the conservation status of the target species; it should produce tangible and measurable benefits for the conservation of the target species and for the local communities in the area where it is carried out; and there should be

Presentation of diplomas to the new eco-guards. The courses take place on the ground where the rangers work, usually in remote, isolated areas with no amenities, which is why small details like this are so valuable.

Privately managed conservation concessions are key to several countries' efforts against poaching and illegal wildlife trafficking. The picture shows an off-road vehicle displaying the Tanzanian Constitution article that explicitly refers to nature conservation.



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In November 2021, the third edition of the Ecoguardas course was held, this time in Kidepo National Park, on the border between Uganda and South Sudan, which was warmly welcomed by local communities.

properly equipped environmental guards or anti-poaching patrols at these sites.

The guidelines were submitted to the 30th CITES Animals Committee held that same year in Geneva, where they were

approved and it was agreed that their implementation would be coordinated by Spain in conjunction with African countries.

The Ecoguardas programme begins in Tanzania

In compliance with the Seville guidelines, Miteco immediately set to work on one of the main demands from the countries of origin: to improve the training, equipment and incentives for environmental guards in their countries of origin; this was also called for by conservation organisations and the recent UN resolution (75/311). To this end, it organised the Ecoguardas programme, aimed at environmental agents, regardless of what they are actually called (forest rangers, rangers, ecoguards, wildlife scouts, game scouts, village scouts, *fiscals*, *agents de conservation*,

COLLABORATION BETWEEN MITECO AND THE MINISTRY OF FOREIGN AFFAIRS

THE MINISTRY OF FOREIGN AFFAIRS, EUROPEAN UNION AND COOPERATION (Ministerio de Asuntos Exteriores, Unión Europea y Cooperación; MAUC) included the objectives of the TIFIES Plan in the Spanish Strategy for External Action 2021-2024 under the heading "Biodiversity, pollution control and the reform of global health governance". Furthermore, in 2020, the Spanish Cooperation's Joint Response Strategy to the COVID-19 Crisis included Spain's commitment to developing

initiatives against illegal trafficking and poaching through the TIFIES Plan. This included actions aimed at the repatriation to and conservation of wildlife in the countries of origin of the species being trafficked, as well as the transfer of knowledge to local technicians in those countries.

In 2019, the TIFIES Plan was also included in the III Plan Africa *Spain and Africa: Challenge and Opportunity* from the MAUC, and in 2020 in the Africa 2023 Focus Programme from the same ministry, which specifically mentions the commitment to support, through the TIFIES Plan, a group of African countries in the fight against poaching, illegal logging and wildlife trafficking.

At the regional level, Miteco, in collaboration with MAUC, participated in the First High-level Conference on Illegal Wildlife Trade in the Americas, held in Lima in 2019, showcasing the actions of the TIFIES Plan. As part of this conference, Spain adhered to the Lima Declaration on Illegal Wildlife Trafficking.



© Conferencia de Lima

COLLABORATION FROM THE COUNTRIES OF ORIGIN

etc.) and whether they carry out their surveillance work on public or private land.

Tanzania, one of Africa's most biodiverse countries and one of the worst hit by poaching, was chosen to host the first Ecoguardas action. Tanzania has a national anti-poaching strategy and is home to 74 conservation concessions with anti-poaching units (APUs) covering up to 121,000 km².

At an altitude of 2,600 metres, Mount Longido is the perfect vantage point over the African savannah. It is a forest reserve in an exceptional location. Here, communal land that is not used for livestock or agriculture is used for hunting. The local communities are the main beneficiaries of the income earned by the various concession holders.

One of these concessions is managed by Michael Mantheakis, a third generation manager in the region. Mantheakis believes that what gives them the right to hunt is a continued commitment to protect and conserve wildlife and its habitat for future generations. For him, sustainable hunting is wildlife conservation, and he has Article 27 of the Tanzanian Constitution written on the door of his four-by-four: "Every person has the duty to protect the natural resources of the United Republic of Tanzania." It is one of the few constitutions in the world that explicitly mentions nature conservation in its articles.

Inexperienced, ill-equipped and untrained young people

Miteco, in collaboration with the Tanzania Wildlife Management Authority (TAWA), the Tanzania Hunting Operators Association (TAHOA) and Michael Mantheakis, conducted the first training and capacity building course for a group of environmental rangers in 2018. The purpose of the course was to train the trainers of the future rangers, and was not of a paramilitary nature. A team of Spanish instructors, including staff from Miteco and the Andalusian Regional Government, travelled to Tanzania to train this first group on the ground.

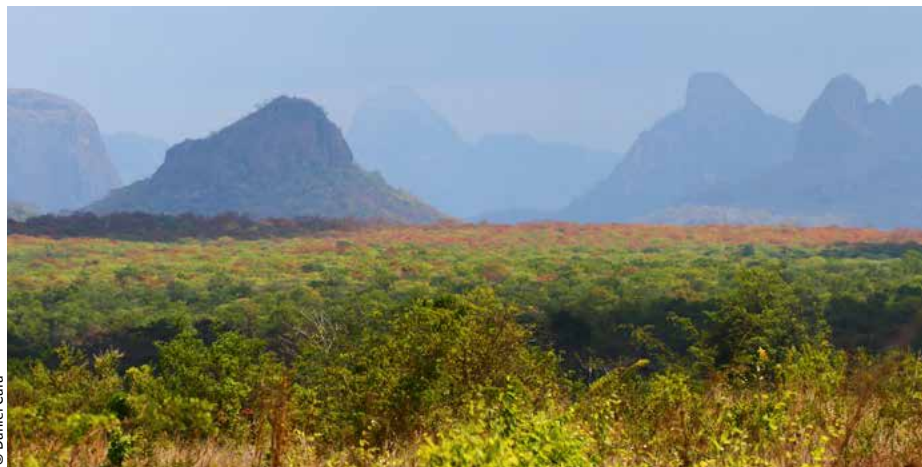
IT IS WORTH HIGHLIGHTING THE WORK OF SEVERAL ENTITIES THAT COLLABORATE WITH THE TIFIES PLAN

in the countries of origin to provide support and promote training, capacity building and equipment projects for environmental rangers. Particularly noteworthy are the projects of the AAP-Primadomus Foundation in the Ifrane National Park in Morocco, for the conservation of the Barbary macaque and its habitat; SEO/BirdLife, also in Morocco, in the northern bald ibis colonies, as well as in several Latin American countries; the Loro Parque Foundation in the Hwange National Park in Zimbabwe; in the Philippines to the south of Palawan to prevent poaching from the nests of the very rare Philippine cockatoo, and in Belize to protect the nests of the yellow-headed parrot in Payne's Creek National Park; the Great Ape Project Spain in Cameroon with the Limbe chimpanzee and Cross River gorilla rescue centre; in Indonesia (Sumatra) with the Kailand Wildlife Rescue Station, which houses the Tapanuli orangutan; and in Borneo, working with Orangutan Foundation International in Tanjung Puting National Park.



© Proyecto Gran Simio

The Great Ape Project, through its work with orangutans in Indonesia, is one of the organisations with collaboration agreements promoted by the TIFIES Plan.



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Key Biodiversity Areas, such as the one pictured above in Qurimbas National Park in Mozambique, identify priority areas where the authorities and private initiatives should concentrate their efforts and investment.

On the left, the defaunation of ecosystems by poaching and illegal trafficking generates a cascade of ecological impacts, including deforestation.

Thirty game scouts from various local communities were trained. Most were young, inexperienced, ill-equipped and had never received any training. The training team decided to carry out a practical assessment in the field to classify their skills and needs based on their individual experience. They were then organised into specific modules with an instructor who they would work with for the two-week-long course. As a result, in small groups, the learning curve grew exponentially each day.

The Ecoguardas programme has developed a method for training anti-poaching patrols through maximising time and resources, involving local communities, modernising the equipment of rangers, and integrating new technologies to effectively combat environmental crime on the ground.

Following the Tanzanian model, in 2021, several courses were given to the rangers of the Arguin, Aewgliat and Diawling reserves and national parks in Mauritania, and the guards in Kidepo and Murchison Falls in Uganda.

Fighting climate change, avoiding deforestation and defaunation

The recent crisis caused by the COVID-19 pandemic, which has meant a significant loss of income from tourism and hunting for African countries, is having a very negative impact on the maintenance of conservation concessions as, without income, many of the concession holders have had to abandon them and the eco-guards are left without work. In addition, as the land is left empty and unsupervised, poaching is on the rise, as is the alteration of the landscape by logging and the transformation of the original ecosystems into agricultural and livestock areas.

With no future prospects, many of the local communities managing these conservation concessions are considering eliminating them and returning them to farming uses that are not compatible with wildlife. This process of habitat reversal has already begun in several countries in eastern and southern Africa.

Maintaining the concessions is extremely important for mitigating climate change.

Priceless lives. Assessing the loss of a forest elephant to poachers.

The "value" of an illegal activity can be defined in different ways, depending on the purpose of the estimates and the conceptual frame of reference. In economic terms, the value of an activity can be measured by the overall revenue it generates, whether legal or illegal. Until now, market estimates have not typically considered impacts on ecosystem services or those related to the loss of income associated with other activities that share the same resource, such as tourism. This graph shows the full bill for the death of a forest elephant at the hands of poachers.

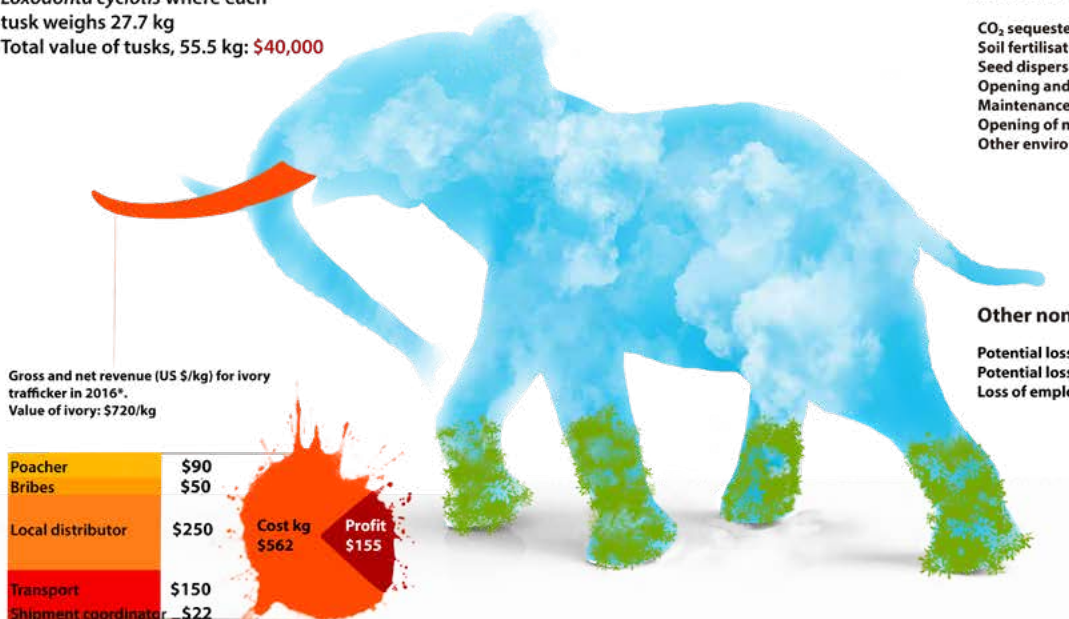
Estimates for a forest elephant *Loxodonta cyclotis* where each tusk weighs 27.7 kg
Total value of tusks, 55.5 kg: **\$40,000**

Loss of ecosystem services over the lifetime of the elephant

- CO₂ sequestering: **\$1,750,000****
- Soil fertilisation: **Unknown**
- Seed dispersal: **U**
- Opening and maintenance of forest paths: **U**
- Maintenance of clearings inside the forest: **U**
- Opening of natural watering holes: **U**
- Other environmental services: **U**

Other non-environmental losses:

- Potential loss of tourist income: **Variable**
- Potential loss of hunting income: **V**
- Loss of employment in local communities: **V**



Source*: EIA Environmental Investigation Agency, The Shuidong connection. 2017

Source**: Ralph Chami et al. The secret work of elephants. Finance & Development. December 2020

TRAINING OF A CANINE UNIT

ANOTHER ACTION WITHIN THE ECOGUARDAS INITIATIVE was the training and preparation of a canine unit in the Republic of Congo, a country that due to its geographical location lies at the heart of the main illegal wildlife trafficking routes. Miteco supported the creation and training of a canine unit for the Congolese Ministry of Forest Economy with the collaboration and support of the Jane Goodall Institute (JGI). In 2019, a group of Congolese technicians received a course from Seprona and the Guardia Civil's Cynological Unit on the key guidelines for keeping and training dogs as well as the function of the eco-guards in the canine unit.

Subsequently, two dogs (Loup and Kivuli) that were being socialised in the JGI's Tchimpounga Reserve were transferred to Spain for training. In 2020, at the end of the training in Spain, their handler travelled with the two dogs back to the Republic of Congo to complete their training in the field, to instruct the canine unit guards in their new role as canine guides.

The unit began operating in the second quarter of 2021, with spectacular results: they carried out 34 missions lasting several days, detecting and seizing up to 79 animal specimens, both dead and alive, from twelve different species, including nine pangolins, 30 blue duikers and eight jungle tortoises. They also seized a considerable quantity of trapping material in addition to various weapons and ammunition. They also stopped people selling meat or live animals, mainly pangolins, from roadside stalls.



© Instituto Jane Goodall/Fernando Turmo



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Many are home to elephant populations, and recent studies have highlighted the key role of these animals in the conservation of forest and savannah ecosystems, one of the world's most important carbon sinks. Elephants are keystone species in terms of sustaining the functionality of these ecosystems, and the carbon storage capacity of forests is positively influenced by their presence as they favour the development of large trees that have denser wood and which therefore sequester more carbon.

In recent years, poaching has reduced the population of forest elephants to 9% of their original numbers, and it has been estimated that their extinction would result in a 7% reduction in carbon sequestration in the region's forests. Specifically, and as an example to illustrate the importance of elephants and the ecosystem services they provide, including climate change mitigation, it is estimated that a single forest elephant contributes to fixing 9,000 tonnes of CO₂/km²/year, which in terms of annual savings in CO₂ emissions into the atmosphere is equivalent to replacing 4,500 traditional cars with electric vehicles.

“Empty forest” syndrome

Related to this, recent research has also shown that a very important factor in forest

degradation is not only the disappearance of elephants, but the more general process of defaunation: the elimination of much of their fauna due to anthropogenic factors, including poaching and habitat alteration.

There is a clear link between defaunation and deforestation. In many tropical forests, the former has led to the so-called “empty forest” syndrome. It is estimated that about 88% of tropical forests face the threat of defaunation.

In forest environments, wildlife species perform many key ecological functions, such as pollination, seed dispersal and germination, and they are consequently involved in plant regeneration and growth, as well as biogeochemical cycles. For example, the reduction or disappearance of large vertebrates, which are important seed dispersers, reduces this dispersal and leads to fundamental changes in tree species composition and forest biomass, ultimately reducing CO₂ storage and uptake by these forests. Defaunation in tropical forests is therefore considered a climate threat.

In this context, the main strategic objective of the TIFIES Plan is to prevent and reduce defaunation through priority actions, such as implementing illustrative projects in the countries of origin that include the generation of biodiversity credits

similar to and associated with carbon credits from conservation concessions.

The TIFIES Plan recently issued a warning about the risk that these concessions will disappear, and, in order to avoid this situation, collaborating organisations, other private entities and NGOs have been called upon to invest in those that are in danger of being abandoned or left unattended, for example by acquiring their rights of use, even temporarily until the global economic situation stabilises, or by procuring these biodiversity bonds.

Psychosocial courses

A second initiative of the Ecoguardas programme involved the innovative psychosocial courses aimed at the rangers of the Kahuzi-Biega National Park in the Democratic Republic of the Congo (see article by Lorena Aguirre on pages 23 and 24), one of the finest chimpanzee and gorilla sanctuaries in the region. There, in 2020, the NGO Coopera, in collaboration with the Congolese authorities and Miteco, held several psychosocial treatment workshops for rangers to train them in resilience and improve their personal resources to help them deal with the traumatic situations suffered in their encounters with poachers and guerrilla groups.

According to their own testimony during the sessions and the observation of the technical team, by the end of the workshops,

their family relationships and problem solving had improved, as talking to the psychological team helped them to see their problems from different angles and to look for effective solutions. Many requested more targeted support and even asked for medication for this. Thanks to the therapy, they also regained good grooming habits, an indicator of psychological improvement, and finally some adopted new strategies to cope with the non-payment of their salaries, a recurring theme throughout the sessions.

All the support and assistance actions for the environmental rangers in the Ecoguardas programme, although still incipient, are among the most important achievements of the TIFIES Plan due to the enormous demand for these in the countries of origin.

Technological advances for eco-guardas

Other types of projects with a scientific research component have also been conducted. One project that stands out is the development, in Botswana, of a system for detecting elephants using drone images and the potential of this for tracking them with satellite images.

To facilitate the field surveillance work of the rangers, and avoid potentially risky situations, researchers from the IMIB Biodiversity Research Institute (CSIC-University of Oviedo), in collaboration with the Botswana authorities and Miteco, have launched a pilot project using drones and satellite images to detect both live and dead elephants over large areas of terrain. The aim is to assess the potential of drone and satellite imagery at different spatial resolutions to systematically and remotely locate live elephants and their carcasses.

The initial results show that it is indeed possible to remotely and automatically identify live and dead elephants in drone images at different spatial resolutions, including those compatible with commercially available satellite imagery. The preliminary analyses correctly identified 81.3% of the elephants photographed in the visible spectrum, increasing slightly to 87.5% in infrared images. The results were equally satisfactory in the case of elephant carcasses.

This novel technique will facilitate the monitoring and surveillance of elephants over large areas and reduce the risk for surveillance patrols by allowing them to plan their field operations more safely.

The research team has also started a collaborative project in Zimbabwe with the Dande de Campfire Conservation Concession (Charlton-MCallum Safaris) to prevent elephant poaching and crop damage using radio-tagging techniques.

Comparative photographs of a herd of elephants in Botswana to test an early warning method that uses satellite images of large mammals as a tool for detecting poaching.



© José Vicente López-Bao



© José Vicente López-Bao

WE NEED NATURE GUARDIANS

Lorena Aguirre, director of the NGO Coopera in the Democratic Republic of the Congo



Dr. Lorena Aguirre on one of her psychosocial courses for the Ecoguardas programme in Kidepo National Park, Uganda, in November 2021.

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TOWARDS THE END OF THE 1800s, WE REALISED that humans were gradually taking over all the land and sea, so we were forced to create “protected” natural areas. Yellowstone National Park was the first in the USA, set up in 1872, and the first in Africa was Albert National Park, now called Virunga National Park, created in 1925.

And with these protected areas we created the figure of the friendly forest ranger who is a friend of trees, birds and children. That is the image that people of my generation had, of a cheerful and good-natured gentleman in uniform, who lovingly educated us on how to protect the forest and its inhabitants.

The image evolves to the ranger who has to fight to ensure that fires do not destroy this beautiful protected area and that hunters respect the laws established by the government of that country. The ranger becomes more serious, respectable and less friendly.

Slowly a hidden war began to emerge that many do not know about. A war between those who want to plunder ALL NATURAL SPACE, whether it is protected or not, and those who are mandated to protect it.

Today, rangers are no longer this friendly figure, they are armed with a k-47, camouflage uniform and paramilitary training. *Ranger* is actually the military term used in the US army for a soldier who has special training in close-range fighting, because our rangers also fight hand-to-hand with illegal looters in the national parks.

The dreaded concept of “conservation militarisation” was born. But who are these “paramilitary” rangers? How do they live? What does their work consist of?

They are ordinary people looking for a job to feed their families who suddenly, without any training, find themselves handling a gun and facing groups of poachers who are increasingly better equipped and trained than they are. In some national parks they also have to deal with rebel groups who take possession of mines within the park, eat whatever they hunt there, build their camps from the park’s trees and parasitise the ecosystem with diseases that can kill entire populations of great apes.

Their work does not stop there, they also have to interact with the surrounding communities, which are continuously moving further and further inside the protected boundaries of the national parks. The communities do not like the *rangers*, they are not “friendly” rangers, and there is no friendly environmental education, it is an open conflict for survival.

With low salaries and poorly equipped

Not all national parks have sufficient funds to manage the thousands of square kilometres they cover. The average salary for this so-called “high-risk” job is between \$50 and \$150 per month. The equipment available is insufficient for all the *rangers* in the park, so it is not uncommon to see them in torn boots and threadbare jumpers; the lucky ones



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Above, the first graduating class of the Ecoguardas programme in Tanzania, 2018. On the right, modernising equipment and integrating new technologies to help the eco-guardians combat poaching are hallmarks of the programme. Below, Lorena Aguirre on another of her courses.

will have some waterproof clothing. There are not even enough weapons for everyone. The patrols are distributed throughout the park in remote and dangerous areas, where they spend long periods of time in solitude, without seeing their families, and often without food rations.

Today we try to bring respect and kindness back to their jobs by referring to them as "eco-guardians", but they are fierce guardians of nature who continue to fight to perpetuate the planet's fauna and flora, without anyone stopping to think about the harsh conditions in which they live and work.

As the director of the NGO Coopera in the Democratic Republic of Congo, my mission is to protect biodiversity by improving the living conditions of the rural communities around the Kahuzi-Biega National Park (KBNP).

For fourteen years I have been living with the KBNP rangers because they have personally taken it upon themselves to protect the Lwiro Primate Rehabilitation Centre and our team. We have shared the harsh experiences they face. Violent and traumatising encounters that sometimes result in life-long physical and psychological injuries, and sometimes in the death of their colleagues in the service. Their very functionality as human beings is affected.

That is why I set up the SBR programme, Strong Balanced Rangers: Resilience Training for Environmental Guardians. This is an adaptation of the resilience programme developed for the US military by Dr Karen Reivich and Dr Martin Seligman of the University of Pennsylvania, which has proven effective with a large sample of soldiers.

82% of eco-guardians have mental disorders

The aim is to assess the mental health of park rangers, provide psychological and psychiatric care when necessary, and train them in a set of skills that will strengthen their resilience. As a result, they will be better able to cope with adversity at work, bounce back more quickly from stressful events and improve their personal and professional performance.

The pilot programme was carried out by the NGO Coopera in the KBNP with the support of Miteco in the framework of the TIFIES Plan. In 2019, we began



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assessing a group of sixty eco-guardians through a series of clinical interviews and psychometric tests. The most significant results were that the majority (81.7%) were diagnosed with one of the 16 types of mental disorders from among the 7 DSM-5 (Diagnostic and statistical manual of mental disorders, Fifth edition) categories.

A large percentage (44.7%) of the disorders were related to trauma and stress factors, specifically post-traumatic stress disorders with varying degrees of severity. Anxiety (18.4%), depression (13.2%), and personality disorders (15.8%) were also detected. A high proportion (65%) showed excessive alcohol and drug use and some (2.6%) had substance-derived psychotic disorders. The disparaging traits were very striking, as the rangers themselves do not feel valued for their work, and it takes a toll on the way they perceive themselves.

In 2020, we began psychiatrically and psychologically treating the eco-guardians, which has been vital for the recovery of their normal functions. Three months after starting the activity, 58% stopped presenting symptoms, 16% decreased the frequency of symptoms, 9% still have symptoms and need follow-up and 2% had to be hospitalised, but left fully rehabilitated.

Through this article, I call on governments, organisations and NGOs to actively collaborate to implement a welfare service in the world's national parks, especially where the fight against wildlife crime is at its most dangerous.

We must protect conservation heroes and restore respect for their profession!

Communicating better to ensure that the TIFIES Plan reaches more people

Most of the plan's actions are listed on its website (<https://sites.google.com/gl.miteco.gob.es/tifies>). It includes a ten-step guide to help users identify decisions or actions in their daily lives that may have an impact on wildlife trafficking and act to reduce this. It also provides the general public with information on the plan's actions and the most important new developments.



At the Cop-25 climate conference in Madrid in 2019, Miteco presented two TIFIES Plan actions that contribute to preserving CO₂ sinks: the Ecoguardas initiative to protect elephants; and the CITES early warning tool for detecting timber and preventing illegal logging.

Professional training in the environmental journalism sector is also a priority of the TIFIES Plan, due to its key role in disseminating information and raising public awareness of this tragedy. In addition, this sector has long been communicating information on the content and scope of TIFIES and its operations, as well as the need to identify the sources of information on the subject in order to properly prepare the news and correctly transmit the information.

For all these reasons, in 2019, Miteco held a conference on journalism and the fight against species trafficking that attracted



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The media contributes to raising public awareness of the impact of species trafficking and biodiversity loss.

Check the origin and legality before you buy products obtained from wild species, from wooden furniture to decorative items.



Do not buy exotic pets.



Support NGOs and associations that combat illegal wildlife trafficking.



On your travels, do not purchase souvenirs containing parts of wild species.



On your social media, do not "like" posts that contain images of wild animals shown with people.



REPORT possible cases of illegal sale and possession of wildlife.



Public collaboration against illegal biodiversity trafficking is also very important, as shown in this ten-step guide.

Reducing the demand for wildlife and wildlife products that do not meet legal and sustainability requirements is the key to ending species trafficking. However, we do not realise that our purchasing decisions or certain apparently harmless actions may be fuelling this illegal trade in threatened species, endangered species and/or species protected by national legislation (in their countries of origin) or international legislation, such as the CITES Convention (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

twenty environmental journalists, including the Spanish Association of Environmental Information Journalists (Asociación de Periodistas de Información Ambiental, or APIA). In addition to Miteco technicians, representatives of Seprona were also in attendance to present the operations carried out in the context of the TIFIES Plan. Taking advantage of the conference, the plan's website was presented and, at the end, Seprona officials gave a press conference in which they presented material seized in an operation against species trafficking.

Another novel action that served to develop new technologies was the celebration of TIFIES Zoonhackathon, in 2018, at the ZOO Aquarium in Madrid. This was the first time the event had been held in Spain, organised by Miteco and in collaboration with the United States Department in charge of the strategy to combat illegal trafficking and species poaching. This international meeting, based on "hackathons", marathons where programmers come together to design solutions to specific problems, united technology and innovation in the fight against poaching and wildlife trafficking through the development of new tools and technological solutions.

Attendance levels exceeded all expectations. The participants organised themselves into teams and focused their efforts on one of the "challenges" that the experts set them, involving the design of a demo-able software product, a hardware product, or a combination of the two. The two final products singled out by the judging panel were a software



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development to improve the traceability of animals bred in captivity, and a software app for detecting advertisements of illegal trade in species. This app (named Traffic Finder) is currently being used by Seprona.

Miteco has also participated in various events and meetings to present the results of the TIFIES Plan. These include its attendance at the COP25 climate change conference held in Madrid in 2019, where it presented the guide to identifying timber, together with representatives of the authorities in Peru and Congo, and the Ecoguardas initiative in the context of the important role elephants play in CO₂ fixation and the fight against poaching, alongside members of the Ugandan authorities.

The TIFIES Plan appears frequently in environmental journals and publications, including several articles in *Quercus*.

Participants in the TIFIES Zoonhackathon focused on overcoming the challenges proposed by the experts. Thanks to this initiative, the Traffic Finder app was developed to locate advertisements for the illegal sale and purchase of species, which is being used with great success by Seprona.

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TSalon Idien Films shows us two parallel realities that come together thanks to the work of the Coopera NGO in the DR of Congo: wildlife trafficking and the suffering of women in armed conflicts.

Coopera is Partner Entity of the TIFIES Plan and they together have implemented the first psychological care Plan for rangers in the Kahuci-Biega National Park. Its goal is to promote the mental health of the guardians of nature so that they can effectively protect the World Heritage.



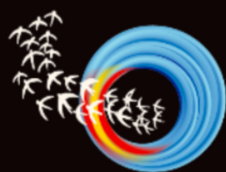
Psychosocial center

MUTIMA

A temple for life



There are no sealed compartments in the fight against wildlife trafficking.



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