fishing, sedimentation as a result of land-use change, pollution, and development of coastal infrastructure. With limited resources, the country is looking to its people to play an active role in protecting and managing marine resources.

In 2012 Fauna & Flora International (FFI) began engaging the Myanmar Government to support sustainable management and conservation of its marine resources. Following the training of Myanmar's first research scuba team, FFI carried out research during 2013–2016 on the coral reefs of the Myeik Archipelago. Although the research found a degraded ecosystem affected by anthropogenic impacts, a number of reefs had a high diversity of corals and fish and up to 92% coral cover. Reefs in the Langann and Thayawthadangyi Island Groups included two Endangered (*Acropora roseni* and *Acropora rudis*) and five Vulnerable coral species (*Acropora acuminata, Pachyseris rugosa, Pavona venosa, Anomastraea irregularis, Turbinaria mesenterina*), the Near Threatened orange-spotted grouper *Epinephelus coioides*, chevron butterflyfish *Chaetodon trifascialis*, and bentfin devil ray *Mobula thurstoni*, the Vulnerable smooth-coated otter *Lutrogale perspicillata*, and the Critically Endangered hawksbill turtle *Eretmochelys imbricata*.

However, sharks, rays and other large predators were notably uncommon on these and other reefs. FFI therefore initiated socio-economic surveys in five island communities, to examine resource use and threats to livelihoods and to identify ways to address these pressures. The communities are diverse both socially and in terms of livelihoods, with three ethnicities, Karen, Burma and the Moken. Although most are fishers (some are farmers) their methods are varied, with spear fishing, stationary and drift nets, hand-lining and reef gleaning. All those interviewed noted a decline in marine resources and attributed this to an unregulated, open access fishery with excessive commercial trawlers and light boats (boats that use artificial light to attract their catch). Although fishers from these islands fish across the archipelago they were keen to have, at least, an area near their village that is free of trawlers, some of which drive through villagers' nets. Working alongside the Myanmar Fisheries Department the concept of Locally Managed Marine Areas was proposed. After 2 years and many discussions, the first of three Locally Managed Marine Area notifications was submitted to the Director General of the Fisheries Department in June 2016. Each notification included delimitation of a boundary, location of no-take and seasonal no-take zones, and appropriate rules and regulations. The notifications were approved, and the three areas (Langann, Don Pale Aw and Lin Lon/Parawa Locally Managed Marine Areas) were gazetted on 31 March 2017. These are the first such notifications designed specifically for marine co-managed fisheries in Myanmar.

Each Area is managed by a 12–15 member committee, including a mix of ethnicities, fisher types and sexes. Management plans for each site have been submitted to the Fisheries Department for approval, and FFI has provided a patrol boat to each Area, to help enforce regulations in collaboration with Fisheries Department officers. Over the past year FFI has also provided these communities with small grants that allow local people to manage livelihood projects. These have included the establishment of two crab banks for blue-swimmer crabs, illegal fishing net exchange, pig rearing and agroforestry.

The establishment of the Locally Managed Marine Areas has engendered considerable interest amongst fishing communities in the Myeik Archipelago, with 10 more communities coming forward to indicate their enthusiasm for the idea. The Fisheries Department and the Tanintharyi State Regional Government have also taken an interest in this approach, as it is a way to involve communities in decision making and managing their own resources, and a step towards sustainable fisheries management for the country.

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First comprehensive database of tree species

The question is one that has long eluded botanists: how many tree species are there? The answer is 60,065, provided by Botanic Gardens Conservation International (BGCI) in a recent article (Beech et al., 2017, *Journal of Sustainable Forestry*, dx.doi.org/10.1080/10549811.2017.1310049).

The number of tree species has been calculated from GlobalTreeSearch, a new publicly available database at www.bgci.org/globaltreesearch. This is the first comprehensive list of tree species and their country-level distributions. Previous estimates were between 40,000 and 100,000 species, and were generally based on broad estimates or models. BGCI began compiling the database over 2 years ago and GlobalTreeSearch now comprises 375,500 records collated from 500 sources.

GlobalTreeSearch offers some interesting statistics. Nearly half of all tree species are found in just 10 families, with the Leguminosae, Rubiaceae and Myrtaceae having the most. Brazil, Colombia and Indonesia are the countries with the greatest diversity of trees. Surprisingly, 58% of tree species are endemic to a single country, with hotspots in Brazil, Madagascar and Australia. Some of the results are as expected; the Neotropic biome is the most diverse, with 23,000 species, and the region with the least tree diversity is the Nearctic region of North America, with fewer than 1,400 species. There are no tree species in the Antarctic.

Although it seems extraordinary that it has taken until 2017 to publish the first global, authoritative list of tree species, it is worth remembering that GlobalTreeSearch represents a huge scientific effort encompassing the discovery, collection and describing of tens of thousands of plant

species. This is big science, involving the work of thousands of botanists over centuries. One of the challenges for the creation of the database was a paucity of available information on the floras of certain regions. The database contains country-level records but also incorporates province-level data for Brazil, China, South Africa and the USA. BGCI encourages submissions from regions where data may not be as readily available, to improve the database. In addition, there is scope for increasing the amount of regional data for other countries as new data become available. For example, island-level data for countries such as Indonesia and the Philippines would be useful for conservation planning and forestry.

BGCI's main reason for undertaking the challenge of documenting tree diversity was to provide a tool for people trying to conserve rare and threatened tree species. GlobalTreeSearch will form the backbone of the Global Tree Assessment (*Oryx*, 2015, 49, 410–415), an initiative to assess the conservation status of all tree species by 2020. This will allow the prioritization of the tree species that are most in need of conservation action so we can ensure that no tree species is lost forever. Current knowledge suggests that at least one in five tree species are threatened with extinction, although this is likely to be a substantial underestimate.

The database will also be used by forestry and restoration practitioners. GlobalTreeSearch contributes to Target 1 of the Global Strategy for Plant Conservation (An online flora of all known plants) and will have direct uses in monitoring and managing tree species diversity, forests and carbon stocks. The database is not a static entity, and will be updated as new information becomes available.

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Bycatch and illegal wildlife trade on the dark web

The dark web has caught the attention of the conservation community because of the surge in interest in the illegal wildlife trade. Following our initial systematic study of wildlife trade over the dark web (Harrison et al., *Conservation Biology*, 2016, 30, 900–904), we have continuously monitored it for further evidence.

One year on, the primary form of business is what we term illegal wildlife trade as bycatch. This refers to wildlife products that are being traded illegally over the dark web, but the reason they are being traded in this forum is that they are potentially illegal for other reasons: the fact that they are wildlife or potentially illegal wildlife is incidental. The two primary forms of illegal wildlife trade as bycatch that we have found are cacti traded for their hallucinogenic properties (Harrison et al., op. cit.), and counterfeit high-end products, notably Chanel handbags, that happen to contain reptile skin. Although it is not possible to verify whether the skins are real or fake, given the price, the high-quality fake Chanel certificates, fake packing tissue paper and the fact that on the dark web a seller's reputation is crucial, the evidence suggests that the skins themselves are likely to be genuine.

There are, however, a few other interesting cases of illegal wildlife trade that are worthy of mention. In our monitoring we focused mostly on high-profile products of conservation concern, principally rhino horn and elephant ivory. So far we have found only three cases of rhino horn for sale. The first appears to be a rather unsophisticated sting operation by a South African investigative journalist group or, less likely, a scam.

The second case is the first credible attempt we have found to sell ivory and rhino horn on the dark web. The items were found on AlphaBay, probably the largest and most popular dark web market. The vendor's store consisted entirely, until mid 2016, of prescription drugs, but in August 2016 a pair of tusks were added, reportedly from the 1960s, and four rhino horns. Having evaluated the information associated with these items, in particular their price and the accompanying image used, and the seller's excellent feedback rating, we conclude the items are genuine. The pictures accompanying the items are cropped from images belonging to the U.S. Fish and Wildlife Service. This may raise questions about the items; however, it is possible that the vendor has merely selected an image from the internet; currently, the items remain unsold.

The third case, also on AlphaBay, is of a seller that seems to have started operations more recently, and most of the items have been on display only since late January 2017. This vendor has a relatively high number of illegal wildlife trade-related items for sale; these include a black rhino horn, an elephant tusk, an ivory statue and an ivory case. Again, and despite their relatively large number of illegal wildlife trade-related products on offer, the vendor has no reported sales. We have not been able to locate copies of the images on the clear web or geo-location data.

So far, we conclude that illegal wildlife trade is occurring over the dark web but only in small quantities. Its most common form is as bycatch, in which the products are potentially illegal for other reasons. We believe we have identified three clear instances of non-bycatch illegal wildlife trade, and therefore continued monitoring is warranted. However, it is unclear whether these few products are on the dark web because of their illegality or whether it is because the vendors are already engaged in other illegal activities that are more prevalent on the dark web. Inadequate enforcement over the clear web means there is still little incentive to move significant quantities of wildlife trade onto the dark web. Again, we warn against sting operations by journalists, conservationists and others (Harrison et al., op. cit.), as this could provide incentive for a move onto