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HORIZON SCANNING FOR ILLEGAL WILDLIFE TRADE: A STRATEGIC APPROACH TO INFORM FUTURE CITES POLICY DECISIONS

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CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

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Horizon scanning for illegal wildlife trade: a strategic approach to inform future CITES policy decisions

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Horizon Scanning for Illegal Wildlife Trade: a strategic approach to inform future CITES policy decisions

This Briefing Document presents the results and methodology of the first horizon scan undertak-en in relation to global illegal wildlife trade (IWT). Results highlighted in this document specifically support and complement CoP18 agenda items 15.1 and 20 and are extracted from a complete manuscript currently available online[1]. The methodology presented[2] offers a recommended approach for CITES Parties and other stakeholders to consider regularly undertaking to identify issues of relevance to their strategic decision-making concerning IWT.

1. Introduction:

Horizon scanning can be defined as "a systematic examination of information to identify potential threats, risks, emerging issues and opportunities"[3]. Horizon scanning is useful to inform future strategic policy responses, particularly in uncertain and complex conditions, as is the case for IWT. Due to its complexity, extent and continued evolution, it is difficult to tackle IWT effectively. As CITES Parties consider proposals for changes to species listings and/or for strategic initiatives, considering the findings of foresight techniques such as horizon scanning could be useful to enable proactive responses to be incorporated into decision-making. With a better awareness of potential significant future issues, risks can be better managed, reducing negative impacts and enabling positive opportunities to be seized. Foresight techniques[4] can guide effective allocation of resources and enable timely investment in technical solutions, policy change and on-the-ground interventions, acting whilst threats are still manageable.

In 2018-19, a team led by Oxford University's Oxford Martin Programme on the Illegal Wildlife Trade[5] carried out a horizon scan for IWT. The horizon scan identified, synthesised and assessed the evidence for emerging global issues (many relatively unknown) deemed likely to significantly exacerbate or disrupt IWT over the next 5-10 years. This process adopted a method used in other robust horizon scanning exercises, but with an inclusive approach to widen participation. One key aim was to support policy- and decision-makers to navigate the complexity of IWT and proactively respond to identified issues, as well as to provide direction for future research.

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[1]N. Esmail et al., 'Emerging illegal wildlife trade issues in 2018: a global horizon scan', 2019, In review.
Preprint DOI: https://doi.org/10.31235/osf.io/b5azx

[2]Further details and work flow in Annex I

[3]UK Cabinet Office and Government Office for Science, Horizon Scanning Programme: a new approach for policy making, 2013, retrieved from: https://www.gov.uk/government/news/horizon-scanning-programme-a-new-approach-for-policy-making

[4]UK Government Office for Science, The Futures Toolkit, 2017, retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674209/futures-toolkit-edition-1.pdf

[5]Oxford Martin Programme on the Illegal Wildlife Trade, http://www.illegalwildlifetrade.net/

The results of this horizon scan (see section 2) are particularly relevant to the following two CITES CoP18 Strategic Matters agenda items:

Agenda item 15.1: Cooperation with other biodiversity-related conventions[6]
By recognizing where different wildlife trades interact with each other and with other drivers of biodiversity loss, practitioners and policymakers can identify opportunities for the fulfilment of CITES goals to be coordinated with those of other biodiversity-related conventions and targets. In general, coordinated responses to IWT under CITES should be mirrored by other biodiversity-related conventions and feed into national and international commitments to the UN Sustainable Development Goals (SDGs) and Aichi Targets.

Agenda item 20: Demand reduction strategies to combat illegal trade in CITES-listed species[7]

Whilst demand-reduction campaigns have a high potential impact, interventions must be carefully designed based on knowledge of the entire context and understanding of any consequential market responses. Consideration must be given to the inherent complexities of illegal trade interacting with legal trade dynamics.

2. Prioritised global emerging issues for IWT:

Figure 1 illustrates the top 20 emerging issues identified during the horizon scan, considered likely to have significant impacts on IWT[8]. These issues are related to any or all elements of IWT: harvest and supply; trade and transport mechanisms; marketplaces and consumers. Issues have positive and/or negative potential outcomes, enabling and/or limiting IWT. Many issues are interlinked. Nine of these top issues are directly relevant to CITES CoP18 Strategic Matters agenda items 15.1 and 20 - these are listed below and further expanded on in Annex II.

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[6]CITES, CoP18 Doc 15.1: 'Cooperation with other biodiversity-related conventions', retrieved from: https://cites.org/sites/default/files/eng/cop/18/doc/E-CoP18-015-01.pdf

[7]CITES, CoP18 Doc 20: 'Demand reduction strategies to combat illegal trade in CITES-listed species', retrieved from: https://cites.org/sites/default/files/eng/cop/18/doc/E-CoP18-020.pdf

[8]For full descriptions and policy perspectives of all issues, see: Esmail et al. 2019 (footnote 1)

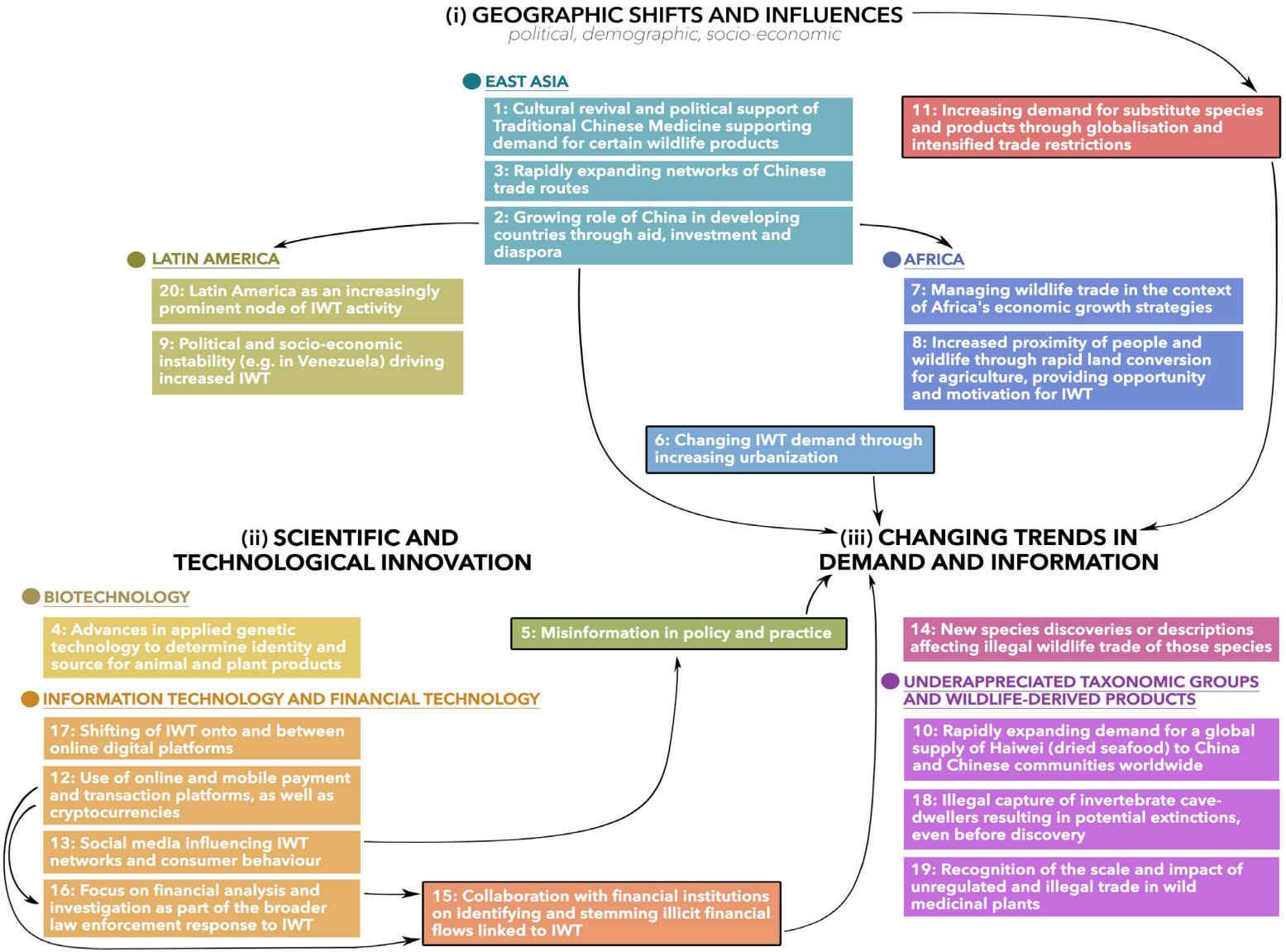

Figure 1: The top 20 emerging IWT issues, illustrating linkages between them. Numbering represents the rank order of the issues (referred to in the text as Horizon scan issues 1-20). Those outlined in black are cross-thematic issues.

IWT horizon scan issues most relevant to CITES CoP18 Strategic Matters Agenda Items 15.1 & 20:

- Horizon scan issue 3: Rapidly expanding networks of Chinese trade routes
- Horizon scan issue 5: Misinformation in policy and practice
- Horizon scan issue 6: Changing IWT demand through increasing urbanisation
- Horizon scan issue 7: Managing wildlife trade in the context of Africa's economic growth strategies
- Horizon scan issue 8: Increased proximity of people and wildlife through rapid land conversion for agriculture, providing opportunity and motivation for IWT (particularly relevant to Sub-Saharan Africa)
- Horizon scan issue 10: Rapidly expanding demand for a global supply of Haiwei (dried seafood) to China and Chinese communities worldwide
- Horizon scan issue 11: Increasing demand for substitute species and products through globalisation and intensified trade restrictions
- Horizon scan issue 18: Illegal capture of invertebrate cave-dwellers resulting in potential extinctions, even before discovery
- Horizon scan issue 20: Latin America as an increasingly prominent node of IWT activity

Each of these emerging issues involves either **a)** links with other biodiversity-related conventions (for example, the UN Sustainable Development Goals and FAO[9]) and thus demonstrates the potential value of cooperation between conventions (Agenda Item 15.1: Horizon scan issues 3, 6, 7, 8, 10, 18, 20), and/or **b)** nuances which may complicate demand reduction strategies, and thus should be considered before implementation of these strategies (Agenda Item 20: Horizon scan issues 5, 6, 10, 11). Further explanation of each of these issues, including case studies, are provided in Annex II.

3. Recommendations:

While horizon scanning is not intended to promote specific policy recommendations, it does effectively detect, highlight and prioritise emerging threats and opportunities in a structured and transparent way. This allows stakeholders to strategise, coordinate resources, and plan anticipatory responses to address issues before their full impacts are realised. On the basis of the horizon scan, CITES Parties may wish to consider the following recommendations:

Recommendation 1: Policy decision-making and funding allocations should be underpinned by evidence about the potential outcomes of these decisions, so as not to miss urgent threats or be misdirected.

[9]For accompanying table linking issues' policy relevance, see Annex III in this document, and Supplementary Material 3, Esmail et al. (2019) (footnote 1)

1.1. A significant challenge across government, academic, private and non-government entities is knowing when, where, and how to prioritise efforts to curb IWT. This is primarily because IWT operates under uncertain conditions, is multifaceted and is often unpredictable. It involves fluid markets, with constantly changing demands and structures, and is a clandestine crime. Actors are continuously innovating and finding new markets. In this complex landscape, appropriate policy responses should be informed by empirical evidence wherever possible[10]. Future-oriented research can support this, particularly to reduce uncertainty.

1.2. While some trends in the legal international trade in wildlife are relatively well-documented[11], the illegal trade is less extensively and systematically documented and researched, and is still poorly understood. Proxy measures of IWT, such as seizure data[12], provide some indication of trade routes and relative scale, but they are prone to severe detection and reporting biases[13]. A reliance on these limited information sources risks the misdirection of resources and overlooking threats that have yet to be acknowledged. Horizon scan issue 10 (***Rapidly expanding demand for a global supply of Haiwei (dried seafood) to China and Chinese communities worldwide***) exemplifies the importance of broadening knowledge about the wildlife trade to inform policy and improve conservation decisions. Information about the underlying drivers of IWT is also challenging to obtain, and understanding the relationship between drivers and IWT trends is not straightforward. Therefore, research into IWT trends, drivers and effectiveness of interventions is a critical priority in order to inform policy.

1.3. In the modern age of networked communication, misinformation can rapidly spread and influence policy and practice. This can be difficult to correct, and can undermine conservation efforts by skewing policy responses and potentially misdirecting scarce resources. In the absence of robust data and in the face of uncertainty over the scale, scope, dynamics and impact of IWT, misinformed public responses may drive politically popular, but ultimately counterproductive, policy measures. Policy responses may then be driven by priorities that do not reflect a true threat, but are simply driven by a need to act or by the agendas of particular actors (Horizon scan issue 5: ***Misinformation in policy and practice***). This should be avoided.

1.4. Document CoP18 Doc. 20 refers to implementation of, support for, and lessons learnt from demand-reduction strategies (Decisions 17.44-17.46, see also Resolution Conf. 17.4) and specifically proposes development of CITES guidance on demand reduction strategies to combat illegal trade in CITES-listed species (CoP18 Doc. 20 Annex 1).

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[10]E.J. Milner-Gulland et al., 'Evidence to Action: Research to Address Illegal Wildlife Trade', 2018, retrieved from: https://osf.io/preprints/socarxiv/35ndz/; [11]M. Harfoot et al., 'Unveiling the patterns and trends in 40 years of global trade in CITES-listed wildlife', Biological Conservation, 223, pp.47–57., 2018, retrieved from: https://www.sciencedirect.com/science/article/abs/pii/S0006320717312478; [12]G. Rosen and K. Smith, 'Summarizing the Evidence on the International Trade in Illegal Wildlife', Ecohealth, 7(1), pp.24-32., 2010, retrieved from: https://wedocs.unep.org/bitstream/handle/20.500.11822/18335/Summarizing_the_evidence_on_the_international.pdf; [13]F.M. Underwood et al., 'Dissecting the Illegal Ivory Trade: An Analysis of Ivory Seizures Data', PLoS ONE, 8(10), 2013, retrieved from: https://pdfs.semanticscholar.org/d3ee/9467088fa26f3ec4a6216e6e-59c8af77230c.pdf

Given the potential benefits of this initiative, it is imperative that all sources relied upon in the development of guidance are clearly traced and substantiated so as to not undermine the integrity, uptake by Parties, and effectiveness of demand reduction initiatives. Currently, demand-reduction campaigns are often designed with inadequate evidence[14]. Information to guide demand reduction campaigns should be interpreted in the light of uncertainties and without generalising beyond the context in which it was generated, to avoid skewing policy responses and misdirecting scarce resources at local, national, regional and global levels.

Recommendation 2: Wildlife trade policy discussions need to incorporate a deeper understanding of complex market dynamics and trends, in order to produce integrated, coordinated responses across sectors and policy arenas.

2.1. Where possible, consideration of the impact of wildlife trade should be placed within a larger ecosystem/landscape-scale perspective. This could optimise synergies with other biodiversity-related conventions and ultimately better protect biodiversity. For example, ivory poaching needs to be addressed in the context of the multiple threats facing the species and the broader context including habitat loss for large-scale agricultural development, human-wildlife conflict and costs to livelihoods and weak governance at a range of scales. Policy and funding currently tend to focus on large, charismatic species, predominantly traded from Africa and Latin America to East Asia. Greater attention should be given to a wider range of traded taxa. For example, Horizon scan issue 18 highlights the ***illegal capture of invertebrate cave-dwellers, resulting in extinction even before discovery.***

2.2. Demand for IWT products can be much more multifaceted and dynamic than is superficially apparent. An example of this type of complexity is illustrated by the ***increasing demand for substitute species and products through globalisation and intensified trade restrictions*** (Horizon scan issue 11). This requires a focus on tracking consumer behaviour and preferences as they evolve.

2.3. A more networked world allows both illegal traders and conservationists to form new alliances, influence public opinion and behaviour, and drive interventions at a range of scales. Rapidly emerging technologies such as closed social media groups and blockchain are changing markets. In particular, the growing reach of mobile technology presents opportunities for conservation and IWT alike. This new IWT environment presents a challenge as illegal traders and entrepreneurs generally operate several steps ahead of regulators and enforcers. This implies that investment in coordinated enforcement strategies and improved technologies to track and disrupt these new networks will become increasingly important.

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[14]S. Greenfield and D. Verissimo, 'To What Extent Is Social Marketing Used in Demand Reduction Campaigns for Illegal Wildlife Products? Insights From Elephant Ivory and Rhino Horn', 25 (1), 2018, retrieved from: https://journals.sagepub.com/doi/pdf/10.1177/1524500418813543

Recommendation 3: Action and processes addressing IWT should be locally-led and encompass broader geopolitical and socio-economic considerations, with a concerted focus on critical regional trade centres.

3.1. Three geographical regions were identified as having a strong influence on IWT, locally and globally: Africa, East Asia and Latin America (i.e. Horizon scan issue 20: ***Latin America as an increasingly prominent node of IWT activity***). This is primarily because these regions are biodiversity-rich, host a high amount of wildlife trade, and are undergoing rapid change and development, socio-economically, demographically and politically.

3.2. Major initiatives such as the Belt and Road Initiative (Horizon scan issue 3: ***Rapidly expanding networks of Chinese trade routes***) and African economic growth strategies (Horizon scan issue 7: ***Managing wildlife trade in the context of Africa's economic growth strategies***) may bring prosperity, but also risk biodiversity loss via interactions between IWT and land conversion (Horizon scan issue 8: ***Increased proximity of people and wildlife through rapid land conversion for agriculture, providing opportunity and motivation for IWT***; particularly relevant to Sub-Saharan Africa). In both Africa and Latin America, increased IWT follows recent and projected changes in economic strategies and infrastructural development plans, which open access to previously unexploited wildlife populations, connect wildlife product traders and consumers, and stimulate the establishment of local and transnational IWT networks. Intensified IWT activities are accompanied by a lack of resources and capacity to adequately address them. Field reports of increased poaching, and media reports of seizures of wildlife products atypical to local consumption validate such concerns. Recognising these patterns of development and exploitation early will help Parties more effectively address IWT through CITES and other trade regulation and enforcement mechanisms.

3.3. With particular relevance to the aforementioned geographical regions, a number of top issues (e.g. Horizon scan issue 6: ***Changing IWT demand through increasing urbanisation***) are underpinned by the increasing global human footprint, as a major cause of current and future conservation challenges. This underlines the need for CITES to maximise opportunities for synergies with other Conventions, particularly in relation to influencing the post-2020 Biodiversity Framework of the CBD.

3.4. IWT dialogues and programmes are often perceived as 'western'-led, with the US, UK and EU supporting efforts with finances and capacity in recent years. But as local community and national political voices (particularly in critical IWT centres) seek more authority over natural patrimony, sovereignty and self-determination, this is changing. Notably, our horizon scan identified greater commitment from African political leaders to tackling IWT, as well as a growing recognition and engagement of local communities. Parties which provide funding for tackling IWT could increase investment in these initiatives and in nations with demonstrable commitments to sustainably managing their wildlife trade and tackling IWT.

3.5. Local and regional alliances between different sectors (business, religious leaders, politicians, NGOs) could strengthen commitments to address IWT. Regional economic development projects could also provide the room and funding to enhance IWT-combatting mechanisms. Example mechanisms already in place, e.g. The Africa-Trade in Wildlife Information eXchange (TWIX) platforms, demonstrate how local mechanisms to combat IWT can be integrated within policy dialogues. Existing CITES reporting and information sharing procedures, such as the Annual Illegal Trade Report, could also serve as mechanisms to inform future regional dialogues on tackling IWT.

3.6. Global IWT policy-making sees a range of decision-makers and stakeholders navigating complex systems of rules and regulations at multiple levels of response (local, regional and international). Currently, Party compliance with CITES provides the dominant means for governing international trade in species. Increasing attention has recently focused on transnational organised crime and security dimensions, broadening involvement in IWT policy to include bodies such as the UN Security Council, INTERPOL, and the UNODC. Regional and global policy initiatives focus on enforcement, technical assistance, and capacity building, yet effective counter-IWT measures ultimately hinge on the political will of high-level decision-makers supporting action 'on the ground'. Addressing emerging issues in such a multifaceted policy-making environment requires harnessing and integrating a range of professional expertise to ensure that wildlife trade not only occurs within the bounds of the law, but is sustainable and does not threaten the survival of wild animals and plants. This will require cooperation between CITES and other biodiversity-related conventions.

4. Next Steps:

Horizon scanning is the first step towards implementing appropriate proactive policy responses. This can be done through a step-wise process involving:

1. Identifying and prioritising issues of concern that require addressing
2. Identifying relevant individuals, groups, policies or legislations, considering their relationships, and prioritising their involvement in the decision-making process (e.g. through in-depth stakeholder and policy-gap analyses)
3. Assessing the most relevant possible futures for this issue (e.g. through participatory scenario planning)
4. Agreeing on appropriate policy responses by defining a desirable future and working backwards to connect that specified future to the present (e.g. through backcasting)
5. Pinpointing developments in technology and understanding what is required to achieve the desired policy impact (e.g. through 'road-mapping')
6. Assessing the costs of different responses to the issue (e.g. with feasibility assessments)
7. Agreeing resourcing needs and implementing the chosen strategic response

5. Conclusion:

Horizon scanning is a powerful tool that allows people to see beyond existing problems and to identify tangible future opportunities. If carried out regularly (every 2-3 years to align with occurrence of CITES CoP), systematic horizon scanning can detect issues before they become urgent or prevalent, and therefore whilst they are still manageable. CITES parties stand to benefit from responding to new opportunities, as well as heading off emerging threats. Horizon scanning can pre-emptively inform effective future policies and support Parties to shift focus from responding to crises to strategically preparing for what is to come.

This briefing, with additional appendices, is available online at www.oxfordmartin.ox.ac.uk/publications/CITES-briefing-2019

For further information, please see:

Esmail, N., Wintle, B., 't Sas-Rolfes, M., Athanas, A., Beale, C.M., Bending, Z., Dai, R., Fabinyi, M., Gluszek, S., Haenlein, C., Harrington, L.A., Hinsley, A., Kariuki, K., Lam, J., Markus, M., Paudel, K., Shukhova, S., Sutherland, W.J., Verissimo, D., Wang, Y., Waugh, J., Wetton, J., Workman, C., Wright, J., Milner-Gulland, E.J. (2019). Emerging illegal wildlife trade issues in 2018: a global horizon scan. In review. Preprint DOI: https://doi.org/10.31235/osf.io/b5azx

About the Oxford Martin Programme on the Illegal Wildlife Trade

This four-year programme of research to tackle the demand for illegal and unsustainable wildlife products will tackle the overarching research question: "How can consumer behaviour be changed, in order to reduce trade in illegal wildlife products?"

Our objectives are:

- To develop new frameworks, approaches and methods for understanding consumer preferences and motivations for using illegal wildlife products;
- To explore the dynamics of physical and online markets for selected illegal wildlife products, as scientific progress changes the landscape within which these markets operate;
- To test innovative interventions to change consumer behaviour for selected illegal wildlife products, and evaluate their impact on consumption of these products;
- To provide tools and guidance for those aiming to intervene effectively in illegal wildlife trade markets through changing consumer behaviour.

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Annex I: IWT horizon scanning approach:

The practice of horizon scanning evolved from the business sector and is frequently used in other fields to better manage risks (such as infectious diseases) and take advantage of opportunities (such as emerging health technologies). Relatively recently, this approach has also been gaining more traction within conservation[15].

Horizon scan issues were drawn from ideas contributed by over 150 people across a diverse range of backgrounds and geographies, representing a range of stakeholder views (from academia, practice and policy). These were then prioritised by a core group of 25 individuals using iteration, dialogue and deliberation, and synthesised to illustrate overarching themes and linkages.

The work-flow diagram shown below outlines the approach taken in identifying and prioritising IWT emerging issues. The main exercise (Stages 1-4) was conducted between March-June 2018. This approach could be used by CITES consultants (agenda item 20, para 17.48 a) as they work on identifying demand reduction issues and strategies.

[15]W. J. Sutherland et al., 'A Horizon Scan of Emerging Issues for Global Conservation in 2019', Trends in Ecology and Evolution, 34 (1), 2019, retrieved from: https://www.sciencedirect.com/science/article/pii/S0169534718302714

Scanning stages with the number of people involved and prioritisation of issues (Esmail et al., 2019):

Annex II: Descriptions of relevant horizon scan issues (to CITES CoP18 Strategic Matters agenda

Horizon scan issue 3: Rapidly expanding networks of Chinese trade routes

China's trade networks are expanding rapidly in scale. Ongoing and emerging bilateral and multilateral trading relationships in Southeast Asia, South Asia, Africa and South America are driving new forms of trade that directly target wildlife, include wildlife as a by-product, or facilitate transport of wildlife into marketplaces, as well as transecting through vital habitats. In particular, the massive infrastructure (roads, ports, and other hard infrastructure) programme, the Belt and Road Initiative aims to link land corridors through Central Asia to Europe and maritime corridors through the Indian Ocean (PRC, 2018), and the Asian Infrastructure Investment Bank aims to stimulate investment in infrastructure in Asia (AIIB, 2018). The extent to which associated companies (both from China and in host countries) incorporate environmental safeguards and abide by international values of corporate social responsibility (Economy & Levi, 2014; Brautigam, 2015; Asensão et al. 2018; Laurance, 2018), and the extent to which these trade routes support improved traceability (Wu & Sadovy de Mitcheson, 2016), will heavily influence the outcomes for wildlife. Existing ports already frequently fail to adequately screen cargo for wildlife, these new connections would likely add an express freight and an increase of wildlife trafficking across the region.

Horizon scan issue 5: Misinformation in policy and practice

Conservation policy has sought to become evidence-based; however, progress remains slow. Policy-makers are often needing to make decisions in the absence of robust research, and in cases where research does exist, poorly designed research (e.g. that does not use appropriate methods or adequate sample sizes) can mislead policymakers. Without robust research, policy formulation is susceptible to misinformation. When misinformation is present, it arises from an interplay between various actors, including market participants, NGOs, policymakers, and the press. For instance, the international media coverage between 2009 and 2011 on rhino horns being allegedly used to cure cancer across Vietnam and China led to a consequent bias in the effort to address such misconceptions. During the period 2000-14, though, medical value was mentioned as a reason to acquire rhino horn in only 29% of Chinese news articles on the subject compared to 84% of western ones, suggesting that, at the time, being a cancer cure was not the overriding reason for horn purchase (Gao et al. 2016). According to Maguire, Haenlein, & Smith (2016), a comparable dynamic occurred in 2013 when an NGO released an unsubstantiated report linking Al-Shabaab, a terrorist group, to the ivory trade (Crosta and Sutherland 2016). They found that, of 115 articles on the Al-Shabaab–ivory nexus published in 2011-15, 48 used this report as a source, 16 relied on circular reporting, and 18 provided no references. These examples represent a concerning trend of the increasing speed at which assertions become accepted in today's networked world, how difficult they are to correct, and how misinformation can ultimately direct political attention and resources in the wrong direction while fundamental IWT issues becomes progressively worse.

Horizon scan issue 6: Changing IWT demand through increasing urbanisation

Population changes including increasing urbanisation, the growing middle classes in Africa and Asia (UN World Urbanisation Prospects, 2018), and the resulting transformation of social norms, impact consumption of wildlife products, potentially increasing demand for products such as wild meat. However, the demand for wild meat in urban centres remains poorly understood. The notion that wild meat is consumed purely by elite urbanites as a luxury commodity oversimplifies understanding of market motivations: wild meat is also sold at some street level restaurants to lower income buyers, and is also seen as a link to the traditions and family in rural areas. Health concerns may also play a role, as wild meat has shorter travel distances than imported frozen domestic meats, and is seen as organic. With an estimated six million tonnes extracted from the Congo Basin annually (Nasi & Van Vliet, 2011), and reports of large imports into European cities (Chaber et al., 2010), increased research on wild meat demand, supply, prices and routes is expected (Boratto & Gore, 2018; Wilkie et al., 2016). Such research could include understanding whether consumers differentiate between legally and illegally traded species, and whether this affects the social acceptability of wild meat consumption within the broader IWT context. The dynamics of urban wild meat consumption are hard to predict, as changing availability and relative cost of alternatives, changing norms regarding the acceptability, health benefits and social status of different meat types, and increasing urban populations will all influence the absolute volume of wild meat of different kinds consumed by urban consumers.

Horizon scan issue 7: Managing wildlife trade in the context of Africa's economic growth strategies

The economy of Sub-Saharan Africa is expected to grow by 3-5% annually over the next decade (World Bank Group, 2018) and possibly more with infrastructure investments and regional trade. Poor infrastructure reduces growth by 2% in Africa, and reduces private sector productivity by 40% (Bhorat & Tarp, 2016). Problematic logistics for trading across borders is a source of Africa's poor Ease of Doing Business (World Bank, 2018) ranking. This is set to change. In March 2018, Africa's leaders committed to an African Continental Free Trade Area (African Union, 2018), setting the path for free movement of goods and people. The Program for Infrastructure Development in Africa (African Union, 2010) mobilises investment in pan-African infrastructure for energy, transport, ICT and water resources. These trade developments could exacerbate IWT as such environmental impacts are not thoroughly addressed in the current trade discussions (WTO, 2015). Increased intra-continental trade facilitates movement of illicit goods (Lezen, 2012). Easing border crossings could make routes difficult to trace, similar to how Schengen has facilitated trafficking within Europe (Sina et al., 2015), enabling organised crime groups to exploit weak enforcement anywhere on the continent. Conversely, African free trade agreements present opportunities to combat IWT by providing stronger governance (Rocha da Silva, 2018) over trade, systemised border crossings and cross-border law enforcement collaboration. Efforts to enhance coordination of wildlife trade efforts are already in motion, i.e. through the Africa-Trade in Wildlife Information eXchange (TWIX) law enforcement network (COMIFAC, 2018).

Horizon scan issue 7: Managing wildlife trade in the context of Africa's economic growth strategies (cont'd)

Investments herald rural jobs and legitimate economic opportunities for rural youth, which could be shaped to incentivise communities to combat IWT. Mainstreaming IWT into growth strategies, investment plans and trade agreements could enable Africans to pursue growth aspirations without losing wildlife resources that are core to functioning ecological systems underpinning sustainable development throughout the continent.

Horizon scan issue 8: Increased proximity of people and wildlife through rapid land conversion for agriculture, providing opportunity and motivation for IWT *(particularly relevant to Sub-Saharan Africa)*

The population of Sub-Saharan Africa is growing faster than any other region of the world and is expected to double by 2050. Much of the growth is in rural areas (FAO, 2015). This combined with the region's expected continued economic growth is projected to increase domestic food demand by three-fold by 2050 (van Ittersum et al., 2016). Whilst opportunities exist for increasing agricultural yields and food imports, agricultural land area is due to increase, inevitably bringing agricultural lands and wildlife lands into closer proximity and overlap (van Ittersum et al., 2016). Agricultural losses to wildlife and other forms of human wildlife conflict are a serious problem for people living inside or alongside wildlife areas, and have been shown to be a driver of wildlife crime (Harrison et al., 2015). As human populations grow, demand for food and agricultural land expands, substantially increasing human-wildlife conflict. Without adequate land use planning, compensation, mitigation against losses and viable livelihoods in place for farmers, rising resentment within rural communities has the potential to increase propensity for law-breaking, and with a ready market for illegal wildlife products both low- and high-value IWT could increase dramatically (Biggs et al., 2016).

Horizon scan issue 10: Rapidly expanding demand for a global supply of Haiwei (dried seafood) to China and Chinese communities worldwide

The largely unregulated exploitation of marine animals in the Haiwei trade, and the limited conservation awareness of its impact is a threat to marine ecosystems worldwide. The term Haiwei refers specifically to dried seafood products. While the name itself originates from South-China, the harvesting, trading, and consumer networks of Haiwei products are currently spread throughout the world (Chen & Li 2012). Shark fins, seahorses and abalone are examples of products that have garnered conservation awareness over the years, however many other marine animal taxa, such as sea cucumbers and bony fishes, are equally impacted by the Haiwei trade (Purcell et al. 2018; WWF Hong Kong 2018). The demand for dried fish swim bladders, for instance, affects at least 70 fish species—20 of which are said by traders and collectors to be endangered, rare, or locally extinct. Yet apart from the CITES-listed totoaba (Totoaba macdonaldi), the sustainability and even the identity of species harvested for their swim bladders remain unknown to the conservation community (EIA 2016). Whilst the harvesting for Haiwei overlaps with the broader issue of illegal, unreported, and unregulated (IUU) fishing, the trade and culture of consumption of Haiwei is unique, given that products carry perceived tonic properties as well as collection and investment values (Ya 2017).

Horizon scan issue 11: Increasing demand for substitute species and products through globalisation and intensified trade restrictions

As a result of intensified measures to restrict trade of species such as tigers (Panthera tigris) and timber, a displacement effect has been observed in demand for analogue species; i.e., similar use or look-a-like species. Trade globalisation further expands options for product substitution. For example, wildlife traffickers have reportedly passed off lion (Panthera leo) and leopard (Panthera pardus) parts as tiger parts (Williams 2015; EIA 2014). Legal traders are also seeking alternative sources by importing lion and leopard bones as substitutes for tiger parts used in Traditional Chinese Medicine, and in some countries have been successful in gaining government issued permits (Williams 2015). A recent EIA report (EIA 2018) found that permits were being issued by some parties for the trade in leopard bone. Substitutions have also been widely recorded in the medicinal and edible orchid trade, and reports of substitutes are increasing as traditionally used species decline. Recent reports of substitutions include Eulophia species used in Ayurvedic medicine, or the increasing number of Dendrobium species used in Traditional Chinese Medicine (Hinsley et al., 2017).

Horizon scan issue 18: Illegal capture of invertebrate cave-dwellers resulting in potential extinctions, even before discovery

Recently, extensive illegal pitfall trapping for invertebrates has been detected in caves of the karst landscapes of Slovenia, Croatia, Bosnia and Herzegovina (Simičevié, 2017). Caves in this region are among the most biodiverse in the world, but poorly described, and data relating to local species, including their location or habitat is lacking. Like other invertebrate troglobionts (cave-dwellers) found elsewhere (e.g. Niemiller et al., 2017) these species are extremely vulnerable: many have extremely limited distributions, and some have been found in only a single cave. Pitfall traps are unselective and over long periods can capture a thousand or more individuals; consequently, there is a risk that poaching might result in the extinction of several species before they are even discovered. Trappers are thought to come from Central Europe, seeking rare predatory ground beetles of the Trechinae subfamily, such as Aphaenopidius treulandi, one of the largest cave beetles in the world (Blatnik, 2017; Simičevié, 2017).

Horizon scan issue 20: Latin America as an increasingly prominent node of IWT activity
While Africa and East Asia have dominated IWT research and policy priorities over the past decade, the profile of (and attention to) activities in Latin America has recently emerged. This has been aided by sensational reports of alleged involvement of Chinese citizens in the poaching of jaguars, supported by reported trade and local seizures of jaguar fangs in China (this market appears to service both domestic and East-Asian demand) (Beijing Morning Post, 2016; Arias, 2018). Unlike in Africa and Asia, it is unclear whether organised crime plays a major role in Latin American IWT, with claims pointing towards disorganised and opportunistic behaviour (Reuter & O'Reagan, 2017). Likewise, the precise relationship between illegal wildlife and drug trade requires further investigation; for example, Auliya et al. (2016) posit that illegal shipments of wildlife have gone undetected due to utilisation of established smuggling routes. Whilst Latin America has been a prime source for illegally traded wildlife products previously (Defenders of Wildlife, 2015), albeit underrepresented in priorities (and dialogues), it continues to present a prime region for further future exploration as it features a vast range of commodity types: fashion (e.g. reptile skins bound for Europe, the US, China, and Singapore), live trade (e.g. birds sold as pets within harvest countries or adjacent states), trafficking for biomedical research (e.g. New World Monkeys), spiritual and medicinal (e.g. condors) and meat (e.g. queen conch, iguana and sea turtle) (UNODC, 2016; Pires & Clarke, 2012; Rodríguez (as cited in Leberatto, 2016); Fitzgerald et al., 2004; Defenders of Wildlife, 2015).

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Annex III: Policy perspectives of relevant horizon scan issues (to CITES CoP18 Strategic Matters agenda items 15.1 and 20):

Horizon Scan issue 3: Rapidly expanding networks of Chinese trade routes			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
Existing CITES measures to regulate trade in relevant internationally traded species. SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation and Infrastructure. CBD Aichi Targets concerning and affected by infrastructure development.	National agencies in source countries and China, including law enforcement agencies (e.g. Chinese central government, Ministry of Commerce, Ministry of Foreign Affairs, Financial Investigation Units). Private sector, including state-owned and private enterprises, financial institutions. International multilaterals and intergovernmental bodies, including UN agencies (e.g. WTO, UNEP, UNDP). NGOs with interests in impacted countries. General public in areas of network expansion.	What are the evolving economic geographies of Chinese trade networks? How are illicit flows organized and maintained within these Chinese trade networks? Will (and how) IWT be facilitated through these routes? What norms or morals govern these illicit flows?	Engage international NGOs and other stakeholders with Chinese actors and those within relevant countries to ensure a functioning regulatory framework is in place before implementing BRI. Inclusive, resilient and sustainable infrastructure could be achieved through strategic ESIAs. Align SDGs, UNFCCC Paris Agreement and CBD Aichi Targets with impacts. Incorporate biodiversity impacts into measurements of national wealth. Create strategic priorities on how trade can be made sustainable.

Horizon Scan issue 5: Misinformation in policy and practice			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
Unknown	National, regional and international research institutes. International multilaterals and intergovernmental bodies (e.g. CBD, CITES, IUCN, UNODC). NGOs with interests in the issue. General public.	What proportion of IWT news is misinformation? Disinformation? What are the most widely disseminated IWT falsities? Does the public accurately recall IWT facts? Are retractions acknowledged? Where do people get their IWT news from?	Develop a Code of Conduct for communications media with an independent fact checking authority.* *NB: Clear differentiation between “fact checking” and “regulation” is necessary. *NB: Regulation of speech is contentious in a number of countries.

Horizon Scan issue 6: Changing IWT demand through increasing urbanization			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
SDG 15: Life on Land, specifically 15.C: “Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.”	National governmental bodies, including educational bodies. International development agencies, multilaterals and intergovernmental bodies (e.g. UNICEF, UNEP, UNDP, ICLEI). NGOs with interests in the issue.	What kind of food and other wildlife product preferences and attitudes exist in various urban areas? How have changing demographics and immigration into urban centres altered these beliefs? Do urban consumers differentiate between legally and illegally traded species? Does this affect the social acceptability of bushmeat consumption within the broader IWT context? Do illegally traded species command a premium price?	Regulate domestic consumption and value chains for wild meat food products. Target consumer behaviour change interventions. Harmonise labour and job growth policies (with a particular focus on the younger generation) with natural resource protection policies. * *NB: A focused demographic shift of youth in urban centres can present major challenges for urban planning, public health and job creation (connection to Issue 43). Anecdotal information suggests that many youth (in developing countries) have never experienced natural settings and may perceive natural environments as reserved for foreigners. However, there is potential for this to be addressed.

Horizon Scan issue 7: Managing wildlife trade in the context of Africa's economic growth strategies			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
PIDA safeguards World Economic Forum on Africa's Growth Corridors UN Forest Instrument; UN Strategic Plan for Forests 2017–2030 (with respect to illegal activities impacting sustainable forest management with Africa noted to be of particular focus, Annex I). SDG 8: Decent Work and Economic Growth; SDG 1: No Poverty, e.g. "economic growth must be inclusive to provide sustainable jobs and promote equality."	National governmental bodies, including trade authorities and law enforcement agencies. Regional communities and unions (e.g. AU, CEN-SAD, ECOWAS, SADC, SADCC, EAC, ECCAS, IGAD, COMESA, UMA). International multilaterals and intergovernmental bodies (e.g. CBD, CITES, FAO, WTO). International and national development aid agencies and development finance institutions (e.g. GEF, WB). NGOs with interests in the region. General public in the region.	How can Africa's accelerated and free trade aspirations facilitate IWT within the continent? What role will natural resources play in trade policy relative to other extractive and land-converting industries and agriculture?	Conduct appropriate analysis of regional and national development policies and programmes to assess possibilities of influencing economic growth strategies. Mainstream and incorporate IWT concerns (including sustainable wildlife use) into development strategies, investment plans and trade agreements. Subsequently, promote advocacy by credible champions to strengthen governance and effective regulation of IWT by increasing capacity of trade authorities and law enforcement officers. Benchmark conservation outcomes to the SDGs when deploying the development finance institutions.

Horizon Scan issue 8: Increased proximity of people and wildlife through rapid land conversion for agriculture, providing opportunity and motivation for IWT			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
Comprehensive Africa Agriculture Development Programme UN Forest Instrument (e.g. VI (7(j)): to strengthen the capacity of countries to address forest-related illegal practices, including wildlife poaching, in accordance with domestic legislation). UN Strategic Plan for Forests 2017–2030 (Global forest goal 5 refers to forest land tenure and land ownership). SDG2: Zero Hunger; SDG 11: Sustainable Cities and Communities; SDG15: Life on Land	National and regional land management and planning agencies. International multilaterals and intergovernmental bodies (e.g. FAO). International and national development aid agencies and development finance institutions (e.g. WB, GEF). NGOs with interests on the issue and in the region. General public.	What is the relationship between secure resource tenure and stewardship? Where are the most rapid land conversions occurring? The least rapid? How do these areas' development policies compare?	Adopt situational crime prevention techniques to combat wildlife crimes. Develop and promote locally appropriate land use planning, adequate land tenure and property rights. Constructively engage with sustainable wildlife utilization programmes and associated product markets.

Horizon Scan issue 10: Rapidly expanding demand for a global supply of Haiwei (dried seafood) to China and Chinese communities worldwide			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
Some Haiwei species listed under CITES Appendices (e.g. seahorses, sharks); further shark and sea cucumber species have been proposed for inclusion in CITES CoP18 SDG 14: Life below Water, specifically to "end illegal and unreported fishing, and destructive fishing practices."	Provincial and national governmental bodies (e.g. Chinese central, Guangdong and Guangxi provincial, Hong Kong SAR and Vietnamese governments), including law enforcement agencies and biodiversity and scientific authorities (specifically fisheries management). Private sector, particularly industry bodies for Haiwei (e.g. Guangzhou Dried Seafood and Nut Industry Association). Regional and international multilaterals and intergovernmental bodies, including trade and fisheries bodies (e.g. FAO Code of Conduct for Responsible Fisheries, Regional Seas Conventions). General public, particularly users/consumers.	What are the species, sources, quantities, harvesting countries, and trade chains of Haiwei products?	Analyse global dried seafood trade to address knowledge gaps and assess its biodiversity impacts. Advocate against consuming unsustainable Haiwei products; raise awareness of its biodiversity impacts and food safety implications (as applicable). Develop sustainability certifications for Haiwei products based on robust evaluation, and promote sustainable and safe substitutes. Integrate illegal Haiwei trade concerns under other appropriate processes (e.g. FAO); provide technical and financial support for implementation of national-level CITES provisions. Develop identification guide for regulators to enhance enforcement capacity and effectiveness. Consider additional measures to target the informal or 'grey' trade between Hong Kong SAR, PRC mainland, Vietnam and Taiwan.

Horizon Scan issue 11: Increasing demand for substitute species and products through globalisation and intensified trade restrictions			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
CITES listings for look-alike reasons	National governmental bodies, including biodiversity and scientific authorities, and trade authorities. National and international transportation industry, including State-owned and private enterprises. International multilaterals and intergovernmental bodies, including regional and bilateral trade agreements (e.g. CBD, CITES, CMS, AU, WTO, IUCN).	What are the existing substitute wildlife products in trade? With reference to the consumer market, geographic locations, and trade routes, how do wildlife products interact within and between commodity types? How do existing local trade regulations and international policies affect the market for substitute wildlife products? How do trade restrictions, market development, and supply limitations affect the demand for substitute species? Can trade regulations, especially concerning food and drugs, relate to IWT control?	Create and maintain accurate and comprehensive documentation of the traded species and their origin. Develop early warning system and methods to predict which species may become substitutes. Target consumer behaviour change interventions (careful not to increase demand by signalling desirability to consumers). Apply precautionary principle in trade for unprotected species and potential substitutes. Integrate food safety, applications of animal and plant health regulations and Hazard Analysis and Critical Control Points approaches alongside IWT regulations.

Horizon scan issue 18: Illegal capture of invertebrate cave-dwellers resulting in potential extinctions, even before discovery			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
SDG 15: Life on Land	National governmental bodies, including biodiversity and scientific authorities, and trade authorities.	Where does this hobbyist market exist? What species or source populations of invertebrates are most threatened by this mode of trade? At what retail prices do these species trade? How long has this activity been going on?	Enact motions by states parties in CBD* *NB. Will require sufficient (likely difficult to obtain) evidence; given that these species fall outside existing regulatory protection there is a strong case for application of the precautionary principle and area / habitat protection- rather than species-based protection measures. Target risk communications to value chain participants (careful not to increase demand by signalling desirability to consumers).

Horizon Scan issue 20: Latin America as an increasingly prominent node of IWT activity			
Current policy context	**Relevant actors and institutions: stakeholders to consider**	**Knowledge gaps**	**Potential policy and management approaches: ideas for discussion**
Western Hemisphere Convention (Article IX of the Convention on Nature Protection and Wild Life Preservation). Existing CITES measures to regulate trade of listed Latin American wildlife species. SDG 15: Life on Land, specifically "Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products."	National and regional trade authorities and biodiversity and scientific authorities in source, transit and destination countries. International multilaterals, intergovernmental bodies and law enforcement agencies (e.g. ECLAC, INTERPOL, UNODC). NGOs with interests in the region. General public in the region.	What is the incidence and prevalence of IWT in Latin America? How has it changed over time and across geographies? How effectively do local policies address IWT? Are there key focal groups of species (range), previously unrecognised and considered? What is extent and potential of the link between IWT and other illicit organised crime chains and trafficking?	Assess the extent of IWT trade in Latin America (to understand trends and patterns from trade and enforcement records). Conduct policy-gap analysis to inform revisions to fill legislation and provide up-to-date amendments. Provide and increase access to wildlife-identification tools and techniques to allow traceability and contribute to admissible evidence for prosecution. To be implemented alongside appropriate training to increase capacity of enforcement officers. Motions by state parties in OAS and ECLAC to elevate issue; possible conference to deliberate on necessary measures, form action plans and working groups. The UK Government is supporting the first Latin America regional IWT Conference to be held in Peru in 2019. Assess feasibility of implementing a regional donor supported program (i.e. similar to USAID's Wildlife Asia program). Communicate to state parties of Western Hemisphere Convention; communicate with regulatory authorities and the transportation sector; target consumer behaviour change interventions. Reinforce existing, and develop new, interregional agreements.