Environmental Impact Classification of Alien Taxa (EICAT) Standard v1

Document 3: Major edits made to EICAT proposed standard and guidelines V1.

IUCN 16/07/2019

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1. Introduction

Following a request by parties to the CBD in 2014 (COP XII Decision 17) to develop a system for classifying invasive alien species based on the nature and magnitude of their impacts, IUCN, through its Species Survival Commission (SSC) and Invasive Species Specialist Group (ISSG), has developed the ‘Environmental Impact Classification of Alien Taxa (EICAT)’, which was published in the scientific literature 2015 (open access). Following this, at the 2016 IUCN World Conservation Congress, IUCN members passed Resolution WCC-2016-Res-018 ‘Toward an IUCN standard classification of the impact of invasive alien species’, which “requests the SSC and Director General to conduct a consultation process involving all relevant stakeholders within the Union to develop EICAT, integrating the outcomes into the IUCN Global Invasive Species Database and the IUCN Red List of Threatened Species, thus providing an essential background for the achievement of Aichi Target 9 (and subsequent related targets) and SDG Target 15.8”.

To implement the IUCN Resolution, in June 2017 the IUCN secretariat and SSC ISSG published a proposed IUCN EICAT standard (version 1) and ran a 6 week consultation using an online questionnaire, inviting all IUCN members, Commissions and secretariat to participate. The consultation, using primarily Likert Scale response (Strongly Agree to Strongly Disagree), with options for adding free text for comments, aimed to solicit feedback on the scientific underpinning of EICAT, its processes and governance as set out in the proposed EICAT standard version 1. The consultation process, and questions were developed using the IUCN Key Biodiversity Area consultation as guidance.

There are three separate documents that present the results of this IUCN wide consultation, and the responses provided by IUCN and its SSC ISSG, and an additional document that presents the major edits made to the EICAT proposed standard version 1.

THIS IS DOCUMENT 3. All documents will be posted on the IUCN EICAT webpage.

1. EICAT v1 consultation results. Document 1: Consultation responses (Likert scale) – presents the likert scale results (strongly agree, agree, neutral, disagree, strongly disagree) received to the questions set in the consultation.

2. EICAT v1 consultation results. Document 2: Key comments/questions with IUCN responses – presents the comments and questions received through the consultation that require a response from IUCN, and provides the response from IUCN and its SSC Invasive Species Specialist Group (ISSG), including the resulting proposed changes to the EICAT standard.

3. Document 3: Major edits made to EICAT proposed standard and guidelines V1 – present the major edits made to the proposed EICAT standard and guidelines in response to the consultation.

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1 https://www.cbd.int/decision/cop/default.shtml?id=13380
5 https://www.iucn.org/theme/species/our-work/invasive-species/eicat
2. Edits to the EICAT Standard:

2.1. Definitions

Definitions have been clarified or expanded where required and now cover all key terms needed to apply EICAT, listed in a logical order. Key additions include:

2.1.1. Clarification of (local) population extinction

The relationship between population, sub-population and local population for the purposes of EICAT assessments has been clarified. A population includes all individuals of the taxon, a sub-population is a geographically or otherwise distinct group in the population, and a local population is a group of individuals within a sub-population. Sub-populations are largely isolated from each other, whereas local populations within a sub-population are connected by frequent immigration. For EICAT assessments, extinction should be evaluated at least at the level of a local population. The relationship between population, sub-population and local population are now better explained with an additional scheme in Figure 1.

2.1.2. Reversible population extinctions (MV/MR distinction)

MR and MV categories are based on evidences of native species local extinction, which could be reversible (MR) or irreversible (MV). Any judgement of feasibility of eradication, re-introductions or habitat restoration have been removed from the criteria. These feasibilities are very difficult to establish in an EICAT assessment procedure, and need additional criteria for the classification of a MR impact (the assessor has to show these non-feasibilities, which are usually not discussed in impact reports) => this includes new causes of uncertainty and subjectivity. In our view, the MV category is meant to discriminate cases where a local extinction has severe consequences (i.e. are not easily reversible) and these are largely determined by the context, not directly by the actions of the alien. The classification to discriminate MR and MV thus uses different criteria as for the other classes.

The distinction between a MV and MR category is now based on a hypothetical scenario and assumes the situation that the alien is removed from the locality where it caused the extinction of a native population, regardless of whether or not an eradication is feasible or if the native species could be re-established with additional effort.

A population extinction is now considered as ‘reversible’ (MR) if the native taxon would be likely to return to the community within 10 years or 3 generations of the native taxon, whichever is longer, under either of the following conditions; (1) naturally (e.g. individuals migrating from a meta-population recolonize the area), OR (2) assisted by human re-introductions, either intentionally or unintentionally, but only where the re-introductions were occurring at a similar rate before the alien taxon led to the native species local population extinction, and the re-introductions are not for conservation purposes. Therefore, re-introductions assisted by humans that were not already in place at the time the alien taxon led to the local population extinction, and that would require extra effort (e.g. re-introductions from captivity or from other areas), are not considered as reversible changes.

A population extinction is now considered as ‘irreversible’ (MV) where the native species would not return to the community within 10 years or 3 generations, whichever is longer, without additional human assistance that was not already in place at the time the alien taxon led to the local population extinction (see Reversible Changes). Local extinctions are irreversible when there is no propagule
influx of the native taxon (e.g. global extinction, disconnection of the local population), or when the alien population changes the environment making it unsuitable for the native taxon.

The advantage of such a change is that it is not now necessary that the assessor judges on feasibility of eradication/re-establishment/habitat restoration, which cannot easily be judged from impact reports. Additional guidance on reversible and irreversible extinctions in the context of EICAT assessments are provided in the Guidelines document.

2.2. Categories

2.2.1. No longer recording Current Impact

Only the Maximum Recorded Impact is kept as an overall score. Although it is valuable to be able to downgrade a taxon as its impacts decrease over time, our main argument for removing the Current Impact option is that it is open to misinterpretation and subjectivity, and that it is very difficult to define when an impact should be downgraded. This might be possible for a specific population where impacts are shown to be decreasing with time (for whatever reason), but even here it will be difficult to discriminate from natural variation in impacts. For example, what would be the threshold in terms of reduction of impact magnitude, or the time scale over which these reduced impacts should be reported? It will be even more difficult to classify a Current Impact for an alien taxon (e.g. at the species level) with multiple populations, as the reduction will probably not be observed in all its alien populations. Moreover, it will be difficult to argue that the former recorded Maximum Impact could not occur again if the alien taxon would be introduced into a new area. Therefore, only Maximum Recorded Impact is kept as the alien taxa global assessment.

2.2.2. Creation of ‘Impact’ and ‘Harmful’ categories

All EICAT categories for which alien taxa can be classified according to the magnitude of their environmental impact (i.e. when there is adequate data) are termed ‘Impact’ categories. This includes MV, MR, MO, MN, MC, and excludes DD, NA, and NE (Figure 2).

The Categories representing the highest level of environmental impact, MV, MR, and MO are termed ‘Harmful’. This follows a similar approach adopted by IUCN Red List of threatened species that classifies those categories with the highest extinction risk, CR, EN, and VU as ‘threatened’ (Figure 2).

2.3. Criteria

2.3.1. Impact mechanisms:

- The criteria of the hybridisation mechanism have been aligned with the criteria of the other mechanisms (and are not based on projected impacts anymore)

- The criteria for the mechanism “Transmission of disease” have been refined and clarified

- The mechanism "Interaction with other alien species" has been broadened to "Indirect impacts through interaction with other species"

- In the MN impact magnitude and throughout, "Fitness" has been replaced by "Performance"
2.4. EICAT classification process

Additional guidance has been provided on the EICAT classification process, and how individual EICAT assessments are undertaken using evidence of impacts at the appropriate spatial and temporal scale. Therefore an alien taxon may be subject to a number of separate EICAT assessments, each resulting in a different EICAT Category. The final EICAT Category assigned to the alien taxon is the maximum recorded impact across all of the different impact assessments (Figure 3).

2.5. Distinction between Spatial scale of assessments and Geographic scale of classification

Additional guidance has been provided on the difference between the spatial scale of assessments, and the geographic scale of classification (Figure 4).

The Spatial scale of assessments relates to the evidence of impacts being assessed using the EICAT Categories and Criteria. This evidence needs to be at the appropriate spatial and temporal scale, over which the original native communities can be characterised. Assessments based on evidence generated at spatial or temporal scales that are very different to the scales over which the local native population can be characterised are likely to be subject to greater uncertainty.

The Geographic scale of the assessment relates to the geographic area over which impacts are assessed to assign the overall EICAT Category to the alien taxon. Where evidence of impacts are assessed from across an alien taxons global alien range, the geographic scale of the maximum recorded impact would be ‘Global’. However, if the evidence of impacts of an alien taxon from only within a country are assessed (excluding impacts from other areas of its alien range in other countries), the geographic scale of the maximum recorded impact would be ‘National’ (Figure 5). IUCN will only review and display global EICAT assessments.

3. Edits to the EICAT Guidelines:

3.1. EICAT classification process

The EICAT classification process has been described in detail (building on the additions made in the Standard). The first step is the pre-assessment step, and gathering of the raw data on impacts (papers/reports etc). The second step is the assessment of the impacts in the collated data (i.e. the evidence at appropriate spatial and temporal scale) using the EICAT Categories and Criteria, which is followed by the assigning of the overall EICAT Category to the alien taxon (i.e. the maximum recorded impact category assigned to the different impact reports). This is followed by the review, submission and publication steps. The step in-between the gathering of the raw data and the assigning of the overall EICAT category to the alien taxon was previously missing.

3.2. Additional guidance on definitions

Additional guidance has been provided on the interpretation of key terms presented in the standard. This includes a number of figures and guidance on the distinction between reversible and irreversible changes (population extinction) to support the understanding of the distinction between MR and MV.

3.3. Dealing with uncertainty
The explanations of the confidence scores have been made more specific to impact reports and EICAT assessments.

3.4. Edits to the EICAT data recording template

Additional fields, incorporating relevant classification schemes, and further guidance has been provided in the data recording template.

4. Future work on EICAT

4.1. Appropriate uses for EICAT assessments

IUCN will produce a ‘Appropriate uses for EICAT assessments’ policy document, similar to that that has been provided for the IUCN Red List. This will address potential misuse of the outputs of EICAT assessments.

4.2. Case studies

Case studies/examples of EICAT assessments will be made available to support the application of EICAT, as more taxonomic groups are assessed.

4.3. Data management plan

A detailed data management plan will be developed as a separate document.