



GEF IW-6

Setting the foundations for zero net loss of the mangroves that underpin human wellbeing in the North Brazil Shelf LME (NBS-LME)

IUCN Red Lists of Ecosystems in the Guianas TRAINING WORKSHOP

24-25 October 2018

Georgetown, Guyana



Contents

1. Background	2
2. Objectives of the workshop.....	3
3. Analysis of Attendees	3
4. Introduction to the IUCN Red List of Ecosystems (RLE) and the Assessment Process.....	4
4.1 Introductory Presentations, CI – Guyana and CI – Suriname Project Representatives	4
4.2 Introduction of IUCN and RLE, IUCN-Sur and Provita	4
4.2 RLE Spatial Criteria: A and B.....	6
4.3 RLE Functional Criteria: C and D	7
4.4 RLE Criterion E	7
4.5 Red List of Ecosystems Case Study	8
5. DAY 2: Continuation of RLE Theory and Assessment Exercises and Tools	8
5.1 RLE Assessment exercises	8
6. Available tools for an RLE assessment	8
7. RLE implementation and integration.....	9
8. Opportunities and knowledge gaps for a mangrove RLE in the Guianas	9
References	9
Annex 1 – Agenda.....	10
Annex 2 – Attendees list	12
Annex 3 – Presentations.....	14
Figure 1: management of the RLE work.....	5
Table 1: Attendance on 25/10/2018 to IUCN Red Listing of Ecosystems workshop.....	3
Table 2: Attendance on 24/10/2018 to IUCN Red Listing of Ecosystems workshop.....	3
Table 3: List of participants, Day 1 (24/10/2018) IUCN Red Listing of Ecosystems workshop and contact information	12
Table 4: List of participants, Day 2 (25/10/2018) IUCN Red Listing of Ecosystems workshop and contact information	12

1. Background

The project titled, “Setting the foundations for zero net loss of the mangroves that underpin human wellbeing in the North Brazil Shelf LME (NBS-LME)”, is a one-year primer project to help establish a shared and multi-national process for an NBS Integrated Coastal Management (ICM) in the NBS. The project is being implemented through a collaboration between Conservation International (CI), the International Union for the Conservation of Nature of South America (IUCN SUR), and local partners in Guyana and Suriname. In Guyana, CI is collaborating with the Mangrove Department of the National Agricultural Research and Extension Institute to implement the project. In this report, the recently completed workshop on the International Union for the Conservation of Nature (IUCN) Red Listing of Ecosystems methodology is described. The aim of this workshop was to build capacity from partners that are involved in Integrated Coastal Management (ICM) to better understand the use of the methodology. The workshop was facilitated by members of the IUCN Provita and IUCN Commission on Ecosystem Management (CEM).

The IUCN Red List of Ecosystems (RLE) is a set of categories and criteria for assessing the risks to ecosystems and to focus attention on where ecosystems are threatened. The RLE aims to assess the global status of all the world’s terrestrial, marine, freshwater and subterranean ecosystems. The RLE complements the IUCN Red List of Threatened Species™. As part of this process, a global ecosystem classification will be developed, based on existing national and other types of classifications.

The Red List of Ecosystems evaluates whether ecosystems have reached the final stage of degradation (a state of Collapse), whether they are threatened at Critically Endangered, Endangered or Vulnerable levels, or if they are not currently facing significant risk of collapse (Least Concern). It is based on a set of rules, or criteria, for performing evidence-based, scientific assessments of the risk of ecosystem collapse, as measured by reductions in geographical distribution or degradation of the key processes and components of ecosystems. By assessing the risks of biodiversity loss at the ecosystem level, the RLE can account for broad scale ecological processes and the important interactions among species that keep ecosystems functioning. The RLE has the potential to be an important and cost-effective tool to assist countries with environmental monitoring and their international reporting requirements (e.g. SDGs, Aichi Targets) in a manner that is comparable over time and repeatable.

2. Objectives of the workshop

The first objective of the workshop was to build the capacity and potential of agencies to use the IUCN RLE assessment protocol with the overall goal of identifying and assessing ecosystems most at risk of biodiversity loss in Guyana coastal marine ecosystems.

The second objective was to outline the applicability, challenges related to knowledge gaps and opportunities for the development of a Mangrove RLE in the Guianas.

3. Analysis of Attendees

On day one of the workshop, a total of fourteen (14) participants attended, plus two (2) facilitators. Of these participants three (3) represented government agencies, nine (9) represented NGOs, one (1) from the private sector and one (1) from civil society. There were nine (9) women and five (5) men in attendance.

On day two of the workshop, a total of thirteen (13) participants attended, of which three (3) represented government agencies, eight (8) represented NGOs, one (1) from the private sector and one (1) from civil society. There were eight (8) women and five (5) men in attendance.

TABLE 1: ATTENDANCE ON 25/10/2018 TO IUCN RED LISTING OF ECOSYSTEMS WORKSHOP

Sector	M	F	Total
Government	0	3	3
NGO	3	6	9
Private sector	1	0	1
Civil society	0	1	1
Total:			14

TABLE 2: ATTENDANCE ON 24/10/2018 TO IUCN RED LISTING OF ECOSYSTEMS WORKSHOP

Sector	M	F	Total
Government	0	3	3
NGO	3	5	8
Private sector	0	1	1
Civil society	0	1	1
Total:			13

4. Introduction to the IUCN Red List of Ecosystems (RLE) and the Assessment Process

4.1 Introductory Presentations, CI – Guyana and CI – Suriname Project Representatives

The representatives of CI (Guyana and Suriname) presented an overview of the current status of the NBS mangrove project. This presentation included challenges, opportunities and areas of data deficiency related to mangrove ecosystem management. The full presentations are attached in Appendix. Some items taken from the presentations and discussed among participants are provided below.

Comment 1: How has Guyana chosen the [mangrove] restoration sites?

This was done based on a situation analysis to note where and why specific areas would be chosen. For example, elevation, natural environmental processes, land use and ability for restoration success.

Comment 2: If there any specific organisations working specifically with water quality and water infrastructure, this can be an area to investigate how the changing dynamics of water can affect restoration.

Comment 3: Is there any national target for mangroves?

The Green State Development Strategy will be used as guidance. In addition, most of the restoration has been covered within the EU-funded project. As more data on coastal dynamics and mangrove coverage become available, an assessment can be made on the feasibility of the restoration efforts.

Comment 4: Was there any data gathered from the 2005 floods on change in surges.

The restoration project was started in 2010, however, the flooding was related to inland areas.

4.2 Introduction of IUCN and RLE, IUCN-Sur and Provita

The role of the IUCN and the RLE governance structure was presented (see Figure 1) to the participants. A brief history, scientific foundations and key concepts of RLE assessment criteria/process was then presented for the remainder of the first day of workshop.

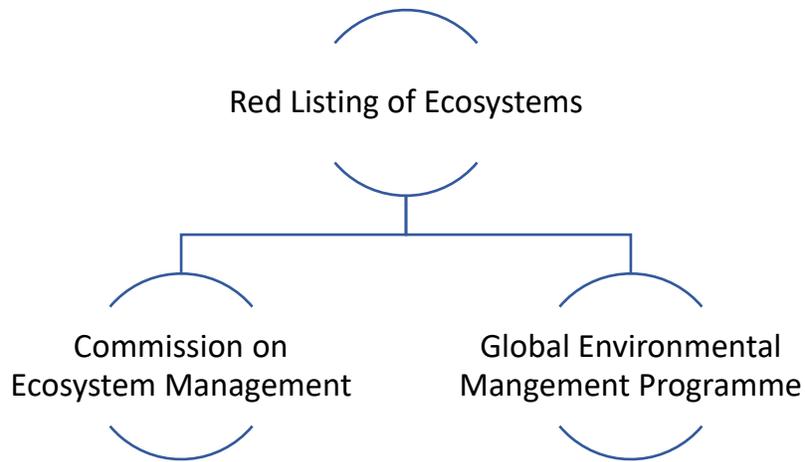


FIGURE 1: MANAGEMENT OF THE RLE WORK

The RLE categories were introduced; namely:

1. Collapsed (CO)
2. Critically Endangered (CR)
3. Endangered (EN)
4. Vulnerable (VU)
5. Near Threatened (NT)
6. Least Concern (LC)
7. Data Deficient (DD)
8. Not Evaluated (NE).

The first six (6) categories are ordered in decreasing risk of collapse. The categories DD or NE do not reflect a level of risk. The categories CR, EN or VU indicate threatened ecosystems and are defined by quantitative criteria. These categories are nested from less to greater risk. For example, an ecosystem type that meets a criterion for Critically Endangered will also meet the criteria for Endangered and Vulnerable categories (in which risk is less severe). The three threatened categories (CR, EN or VU) are jointly referred to as threatened, and are complemented by several qualitatively defined categories that accommodate:

- i. Near Threatened (NT) that almost meet the criteria for Vulnerable;
- ii. Least Concern (LC) that meet none of the criteria for Vulnerable;
- iii. Data Deficient (DD) for which too few data exist to apply any criterion; and
- iv. Not Evaluated (NE) that have not been assessed.

It is increasingly recognized in conservation that assessing risks to biodiversity at multiple levels is required to provide comprehensive evidence for policy-making and management. IUCN pioneered the way for systematic and standardized assessment of species risk, but until recently no equivalent standard existed for ecosystem-level risk assessment (IUCN, 2014a).

It is well known that many iconic ecosystems (Amazon Rainforest, Coral Reefs) are in danger of disappearing or being degraded but what do we really know about the extent and impact of these losses? Which ecosystems are most at risk of large changes that involve loss of diversity? How great are the risks, and how soon are the changes likely to occur?

The RLE was developed to answer these questions. Ecosystem risk assessments complement information about risks to species and strengthen conservation messages. Ecosystem assessments address important ecological processes and dependencies, and interactions among species. Ecosystem loss and degradation can precede species loss, and has impacts on ecosystem services. Therefore, RLEs can complement the policy successes of species red lists, and strengthen the case for conservation and sustainable resource use (IUCN, 2014b).

4.2 RLE Spatial Criteria: A and B

Overview and key concepts of RLE Spatial Criteria A and B were presented. Two of the five criteria are based on spatial symptoms of ecosystem collapse: the rates of decline in distribution (A), and the degree to which the distribution is restricted (B).

Criterion A: Reduction in geographic distribution: A decline in geographic distribution influences its risk of collapse by (i) reducing the ability of an ecosystem to sustain its characteristic native biota; and (ii) predisposing it to additional threats. On-going declines in distribution lead to the loss of characteristic native biota occurs through a combination of reduced carrying capacity, reduced niche diversity, spatial separation of resources, and increased susceptibility to competition, predation and threats. The rate of decline in an ecosystem indicates its speed towards collapse

Criterion B: Restricted geographic distribution: The extent of geographic distribution of an ecosystem influences its risk of collapse when exposed to spatial threats, for example invasive species, pollution, and climate change. The primary role of criterion B is to identify ecosystems whose distribution is so spatially restricted (confined to a small area) that they are at risk of collapse from the chance

occurrence of a single or few threatening events, for example invasive species or fire. Ecosystems that are widely distributed, existing across multiple independent patches are at lower risk from spatial threats.

4.3 RLE Functional Criteria: C and D

Overview and key concepts of RLE Spatial Criteria C and D were presented. These two criteria are based on functional symptoms of ecosystem collapse: the rate and extent of environmental degradation (C), and the rate and extent of disruption of biotic processes and interactions (D).

Criterion C: Environmental degradation: Abiotic degradation is the deterioration of the physical, non-living attributes that have a defining role in ecosystem-specific characteristics (e.g. specific ecological processes and/or the distribution of an ecosystem). This is one of the strengths and value-added of the RLE in being able to identify such threats. Abiotic degradation reduces the capacity of an ecosystem to sustain its biota and ecological processes, e.g. shifts in fire regimes, environmental flows, and climatic conditions.

Criterion D: Disruption of biotic processes and interactions: Biodiversity loss reduces the capacity of ecosystems to capture resources, produce biomass, decompose organic matter and recycle carbon, water and nutrients. The diversity of organisms contributes to ecosystem functions. Disruptions to biotic and abiotic processes and interactions can cause collapse, regime shifts and re-organisation towards novel ecosystems.

4.4 RLE Criterion E

Overview and key concepts of RLE Spatial Criteria E were presented. This fifth criterion facilitates the integration of multiple threats and symptoms into a model to produce quantitative estimates of the risk of collapse (E).

Criterion E: Quantitative risk analysis: This is an analysis that takes into account potential changes and identifies scenarios to help forecast possible outcomes for ecosystems over time to estimate the probability of ecosystem collapse. This is done through a quantitative model of ecosystem functions to: a) incorporate multiple threats and interactions; b) provide a synthetic view of processes captured in other criteria; and c) forecast ecosystem status under different scenarios.

4.5 Red List of Ecosystems Case Study

A guided session was done on preparing a complete RLE assessment was conducted. This case study focused on the **Coorong Lagoon, Australia**. The exercise found the ecosystem to be Critically Rare (CR) using the five RLE criteria.

5. DAY 2: Continuation of RLE Theory and Assessment Exercises and Tools

5.1 RLE Assessment exercises

Examples of applying the five RLE criteria, using the Yellow Sea Tidal Flats – China was provided.

6. Available tools for an RLE assessment

An overview of the available tools used for an RLE assessment were given as reference. These tools include:

- a) Guidelines - The fundamental source of information for how to apply the RLE categories and criteria.
- b) Training materials (workbooks, exercises, tutorials)
- c) Global RLE team - Technical expertise with RLE method
- d) Contact: redlistofecosystems@gmail.com
- e) Access specialists with experience and expertise on specific ecosystem types
 - Join the RLE practitioner's forum: iucn-red-list-of-ecosystems@googlegroups.com
 - Case studies - 50+ case studies of different ecosystem types are now available: a very important resource.
 - Ecosystem mapping
- f) Free computer software:
 - Remap online remote sensing (available at <https://remap-app.org/remap>)
 - R package for spatial analysis
 - ArcGIS tools for spatial analysis

- Excel tools for change metrics

More information and links relating to RLE assessment tools available at:

<https://iucnrle.org/resources/capacity-building/>

Website: www.iucnrle.org

7. RLE implementation and integration

Presentation on RLE progress so far and lessons learned from previous and ongoing initiatives.

8. Opportunities and knowledge gaps for a mangrove RLE in the Guianas

An overview of the needs and goals, data availability and quality and available and missing resources relating to the development of a Mangrove in the Guianas was presented.

This built on the experience of the CI (Suriname and Guyana) teams and the IUCN RLE Trainers relating to studying and mangrove ecosystems in the NBS and general ecosystem assessments respectively.

References

- IUCN (2014a). Red List of Ecosystems Workshop Report. Cambridge, United Kingdom, 22–23 January 2014. Commission on Ecosystem Management and Species Survival Commission, International Union for Conservation of Nature, Gland.
- IUCN (2014b) Consultation document on an IUCN standard for the identification of key biodiversity areas. International Union for Conservation of Nature, Gland.

Annex 1 – Agenda

Day 1: 24th October 2018

Time	Event	Trainer/ Speakers
08:00 – 08:15	Welcome and Introduction to the Workshop Welcoming remarks	IUCN/CI
08:15 – 08:45	Participants' introductions	All participants and speakers
08:45 – 09:45	Introduction to the current status of the project	IUCN/CI
09:45 – 10:00	Coffee Break	
10:00 – 11:00	Introduction to the IUCN Red List of Ecosystems (RLE) and the Assessment Process Brief history, scientific foundations and key concepts	RLE Trainers
11:00 – 12:00	RLE Spatial Criteria: A and B Overview and key concepts	
12:00 – 13:30	Lunch	
13.30 – 14:40	RLE Functional Criteria: C and D Overview and key concepts	RLE Trainers
14:40 – 15:00	RLE Criterion E Overview and key concepts	
15:00 – 15:15	Coffee break	
15:15 – 16:00	Red List of Ecosystems Case Study Walk through a complete RLE assessment	RLE Trainers
16:00 – 16:30	Questions and comments	All
16:30	End of Day 1	

Day 2: 25th October 2018

Time	Event	Trainer/ Speakers
08:00 – 08:15	Welcome Questions and comments from previous day	RLE Trainers
08:15 – 09:35	RLE Assessment exercises Applying the RLE criteria	RLE Trainers
9:35 – 09:45	Available tools for an RLE assessment Overview of available tools	RLE Trainers
09:45 – 10:00	Coffee Break	
10:00 – 11:00	RLE implementation and integration Progress so far Lessons learned from previous and ongoing initiatives	IUCN
11:00 – 12:00	Opportunities and knowledge gaps for a Mangrove RLE in the Guianas Needs and goals Data availability and quality Available and missing resources	IUCN/CI
12:00 – 13:30	Lunch	

Annex 2 – Attendees list

TABLE 3: LIST OF PARTICIPANTS, DAY 1 (24/10/2018) IUCN RED LISTING OF ECOSYSTEMS WORKSHOP
AND CONTACT INFORMATION

Name	Title	Organisation	Contact Number	Contact Email
Arturo Mora	Senior Programme Officer	IUCN-South America	593-333-0684	arturo.mora@iucn.org
Varsha Gopaul	Forest Resource Planning Officer	Guyana Forestry Commission	226-7271 ext. 349	varshalgopaul@gmail.com
Eunike Alexander	Technical Manager	Conservation International (Suriname)	597-504-4473	emisiekaba@conservation.org
Kayleijh Tjitratipo	Technical Project Assistant	Conservation International (Suriname)	597-075-5924	k_tj_@hotmail.com
Jose Ferrer	Associate Researcher	Provita, IUCN CEM	57-320-881-1396	jose.ferrer@provitaonline.org
Nima Raghunathan	Programme Officer	IUCN GEMP	32-474-195-965	nima.raghunathan@iucn.org
Annette Arjoon Martins	President	Guyana Marine Conservation Society	600-7272	annette.arjoon@aslgy.com
Els van Lavieren	Technical Department (Head)	CI-Suriname	005-978-554-330	evanlavieren@conservation.org
Stephen Crooks	Principal Coastal Management	Silvestrom Climate Associates	1-415-272-3916	steve.crooks@silvestrom.com
Stuart Banks	Marine Science Lead Americas	Conservation International	593-988-117-785	sbanus@conservation.org
Emilio Cobo	Programme Officer	IUCN	593-979-908-626	emilio.cobo@iucn.org
Kene Moseley	Project Coordinator	NAREI	600-2224	kmoseley@narei.gov.gy
Dulcie Abraham	Environmental Officer	EPA	677-9877	dol.abraham1@gmail.com
Juliana Persaud	Biodiversity Officer	WWF-Guianas	223-7802	jpersaud@wwf.gy

TABLE 4: LIST OF PARTICIPANTS, DAY 2 (25/10/2018) IUCN RED LISTING OF ECOSYSTEMS WORKSHOP
AND CONTACT INFORMATION

Name	Title	Organisation	Contact Number	Contact Email
Dulue Abraham	Environmental Officer	EPA	677-9877	dol.abraham1@gmail.com
Kene Mosley	Project Coordinator	NAREI	600-2224	kmoseley@narei.gov.gy
Emilio Cobo	Programme Officer	IUCN	593-979-908-626	emilio.cobo@iucn.org
Arturo Mora	Senior Programme Officer	IUCN-South America	593-333-0684	arturo.mora@iucn.org
Nima Raghunathan	Programme Officer	IUCN GEMP	32-474-195-965	nima.raghunathan@iucn.org
Jose Ferrer	Associate Researcher	Provita, IUCN CEM	57-320-881-1396	jose.ferrer@provitaonline.org
Annette Arjoon Martins	President	Guyana Marine Conservation Society	600-7272	annette.arjoon@aslgy.com
Els van Lavieren	Technical Department (Head)	CI-Suriname	005-978-554-330	evanlavieren@conservation.org
Stephen Crooks	Principal Coastal Management	Silvestrom Climate Associates	1-415-272-3916	steve.crooks@silvestrom.com
Stuart Banks	Marine Science Lead Americas	Conservation International	593-988-117-785	sbanus@conservation.org
Kayleijh Tjitratipo	Technical Project Assistant	Conservation International (Suriname)	597-075-5924	k_tj_@hotmail.com
Varsha Gopaul	Forest Resource Planning Officer	Guyana Forestry Commission	226-7271 ext. 349	varshalgopaul@gmail.com
Eunike Alexander	Technical Manager	Conservation International (Suriname)	597-504-4473	emisiekaba@conservation.org

❖ **Host Facilitator:** Kerry Anne Cort

❖ **Co-Facilitators:**

- Irene Zager and Jose Murillo (PROVITA/IUCN-CEM)
- Nima Raghunathan (IUCN-GEMP)
- Emilio Cobo and Arturo Mora (IUCN-South America)

Annex 3 – Presentations

Country Presentations



PPT_Suriname.pptx



Presentation IUCN
meeting_Guyana.pp

IUCN/RLE Presentations



IUCN.ppt



RLE_P7_CaseStudies_
EN_v2_WorkshopGec



RLE_P1_Introduction
_Foundations_EN_Gu



RLE_P9_Exercises_EN
_v1_WorkshopGeorg



RLE_P3_CriterionA_E
N_v2_WorkshopGeor



RLE_P8_Tools_EN_G
uianas_1810.pptx



RLE_P4_CriterionB_E
N_v2_WorkshopGeor



RLE_P5_CriteriaC+D_
EN_Guianas_1810_Fi



RLE_P6_CriterionE_E
N_v2_WorkshopGeor