Green Status of Species: Supplementary information

Niger Delta Red Colobus (*Piliocolobus epieni*)

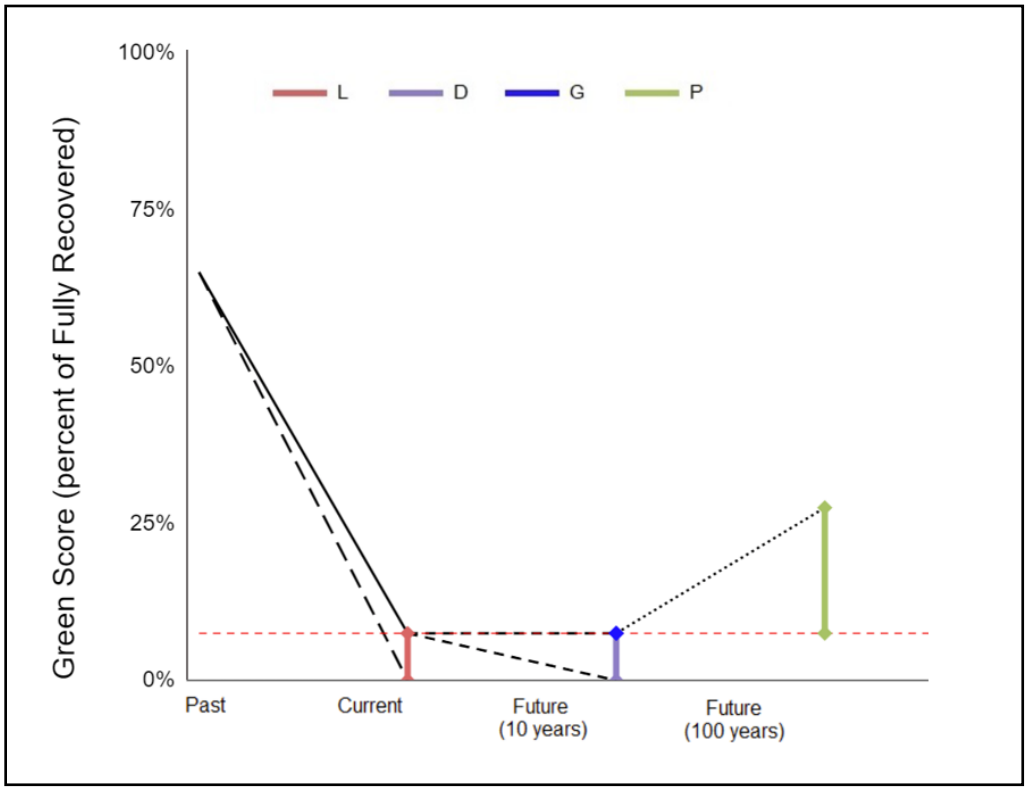

Figure S1. Graphical representation of the conservation metrics based on the Green Scores. Key: Vertical arrows represent the four conservation metrics: L – Conservation Legacy (may not appear if current and counterfactual states are the same); D – Conservation Dependence (may not appear if current and future-without-conservation states are the same); G – Conservation Gain (may not appear if current and future-with-conservation states are the same); P– Recovery Potential (may not appear if current and potential states are the same). The horizontal red dashed line represents the Current Green Score. Solid black line: observed change in the Green Score of the species (ignore it if "Former" state is not specified). Long-dashed black line: (counterfactual) past change expected in the absence of past conservation efforts. Dashed black lines: future scenarios of change expected with and without current and future conservation efforts. Dotted black line: long-term potential change expected with future conservation innovation and efforts.

Figure S2. Distribution map of Niger Delta Red Colobus, based on the range described by Werre (2000).

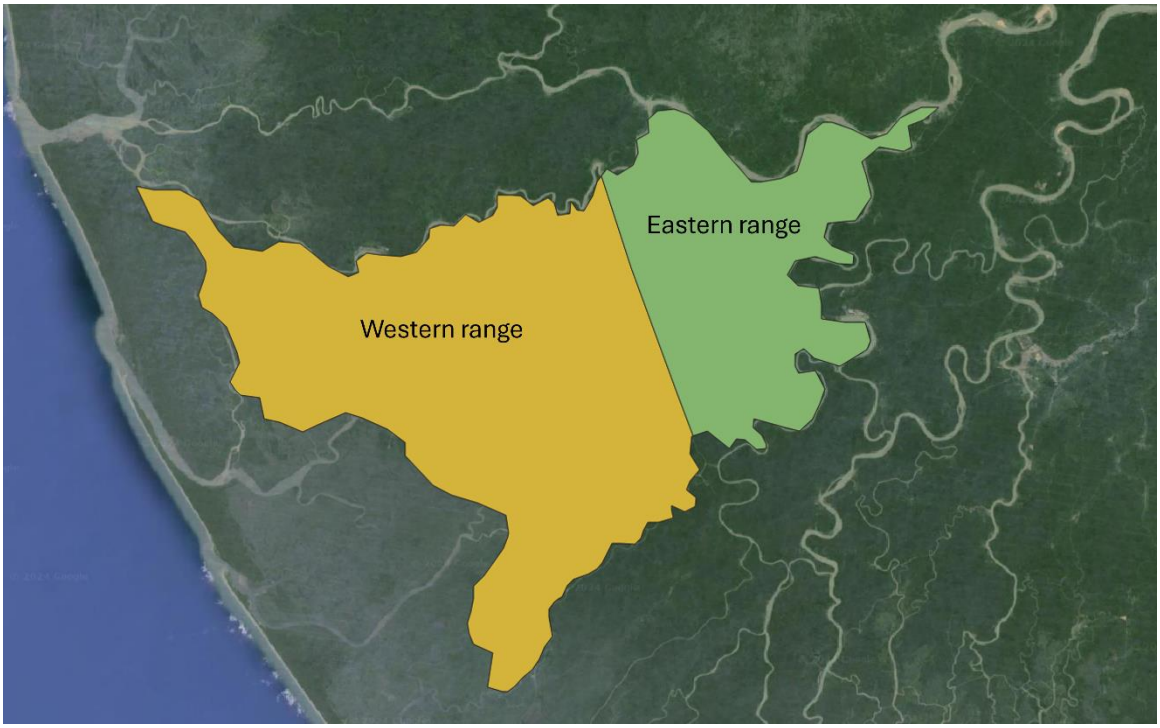

Figure S3. Map of Niger Delta Red Colobus spatial units, based on Werre (2000).

Table S1. Conservation Actions (list of action codes).

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
1.1.	1.1. Land/water protection: Site/area protection		In late 2020 the President of Nigeria approved the proposal by the Nigeria National Park Service to establish 10 new national parks, amongst which would include the Apoi Creek Forest Reserve covering 64.8 km^2. Apoi forest reserve designated, National Park establishment still under review.	Ongoing work to try and establish effective Protected Areas.	
1.2.	1.2. Land/water protection: Resource & habitat protection		Habitat is key for these species. Work to establish the National Parks and preserve habitat.		
2.1.	2.1. Land/water management: Site/area management		The establishment of the National Park and work towards effective management.		
2.2.	2.2. Land/water management:				

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
	Invasive/problematic species control				
2.3.	2.3. Land/water management: Habitat & natural process restoration				
3.1.1.	3.1.1. Harvest management				
3.1.2.	3.1.2. Trade management				
3.1.3.	3.1.3. Limiting population growth				
3.2	3.2 Species recovery				
3.3.1.	3.3.1. Species re-introduction: Reintroduction				
3.3.2.	3.3.2. Species re-introduction: Benign introduction				
3.4.1.	3.4.1. Ex-situ conservation: Captive breeding/artificial propagation	Attempts to breed this species in captivity have been unsuccessful.			
3.4.2.	3.4.2. Ex-situ conservation:				

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
	Genome resource bank				
4.1.	4.1. Education and Awareness: Formal education				
4.2.	4.2. Education and Awareness: Training		All rangers and most of the staff on community project are from the community.	x	x
4.3.	4.3. Education and Awareness: Awareness & communications		Community conservation area established in Apoi: education in how to use the forest, importance of biodiversity, working with communities to manage forest.	x	x
5.1.1.	5.1.1. Legislation, International level		Listed in Appendix II of CITES and Class B of the African Convention on the Conservation of Nature and Natural Resources.	x	x
5.1.2.	5.1.2. Legislation, National level			An identified action for this species is to "At the state level, formulate (or appropriately revise)	

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
				and communicate laws and policies relevant to red colobus conservation". Future plans should include work for national and sub-national legal protections for the species.	
5.1.3.	5.1.3. Legislation, Sub-national level				
5.1.4.	5.1.4. Legislation, scale unspecified				
5.2.	5.2. Policies and regulations				
5.3.	5.3. Private sector standards & codes				
5.4.1.	5.4.1. Compliance and enforcement-International level		x	x	x
5.4.2.	5.4.2. Compliance and enforcement-National level				
5.4.3.	5.4.3. Compliance and enforcement-Sub-national level				

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
5.4.4.	5.4.4. Compliance and enforcement-Scale unspecified				
6.1.	6.1. Livelihood, economic & other incentives: Linked enterprises & livelihood alternatives				
6.2.	6.2. Livelihood, economic & other incentives: Substitution				
6.3.	6.3. Livelihood, economic & other incentives: Market forces				
6.4.	6.4. Livelihood, economic & other incentives: Conservation payments				
6.5.	6.5. Livelihood, economic & other incentives: Non-monetary values				

Table S2. Threats (list of threat codes).

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
1.1	1.1 Residential & commercial development: Housing & urban areas				
1.2	1.2 Residential & commercial development: Commercial & industrial areas				
1.3	1.3 Residential & commercial development: Tourism & recreation areas				
2.1.1	2.1.1 Agriculture & aquaculture: Annual & perennial non-timber crops: Shifting agriculture				
2.1.2	2.1.2 Agriculture & aquaculture: Annual & perennial non-timber crops: Small-holder farming		Artisanal scale logging. Key food resources, including *Mitragyna ledermannii*, are valuable trees.	x	x
2.1.3	2.1.3 Agriculture & aquaculture: Annual & perennial non-timber crops: Agro-industry farming		High level of logging as growing human population, logging more lucrative than fishing. Much of the forest across the range now lacks large or even medium trees.	x	x
2.1.4	2.1.4 Agriculture & aquaculture: Annual & perennial non-timber				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	crops: Scale Unknown/Unrecorded				
2.2.1	2.2.1 Agriculture & aquaculture: Wood & pulp plantations: Small-holder plantations				
2.2.2	2.2.2 Agriculture & aquaculture: Wood & pulp plantations: Agro-industry plantations				
2.2.3	2.2.3 Agriculture & aquaculture: Wood & pulp plantations: Scale Unknown/Unrecorded				
2.3.1	2.3.1 Agriculture & aquaculture: Livestock farming & ranching: Nomadic grazing				
2.3.2	2.3.2 Agriculture & aquaculture: Livestock farming & ranching: Small-holder grazing, ranching or farming				
2.3.3	2.3.3 Agriculture & aquaculture: Livestock farming & ranching: Agro-industry grazing, ranching or farming				
2.3.4	2.3.4 Agriculture & aquaculture: Livestock farming & ranching: Scale Unknown/Unrecorded				
2.4.1	2.4.1 Agriculture & aquaculture: Marine & freshwater aquaculture:				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	Subsistence/artisanal aquaculture				
2.4.2	2.4.2 Agriculture & aquaculture: Marine & freshwater aquaculture: Industrial aquaculture				
2.4.3	2.4.3 Agriculture & aquaculture: Scale Unknown/Unrecorded				
3.1	3.1 Energy production & mining: Oil & gas drilling		Oil is a key export and lots of oil extraction from the Niger Delta.	x	x
3.2	3.2 Energy production & mining: Mining & quarrying				
3.3	3.3 Energy production & mining: Renewable energy				
4.1	4.1 Transportation & service corridors: Roads & railroads		Roads and canals built for exporting oil, affecting prime habitat for *Piliocolobus epieni*	x	x
4.2	4.2 Transportation & service corridors: Utility & service lines		Roads and canals built for exporting oil.	x	x
4.3	4.3 Transportation & service corridors: Shipping lanes				
4.4	4.4 Transportation & service corridors: Flight paths				
5.1.1	5.1.1 Biological resource use: Hunting & collecting terrestrial animals: Intentional use		x	x	x

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	(species being assessed is the target)				
5.1.2	5.1.2 Biological resource use: Hunting & collecting terrestrial animals: Unintentional effects (species being assessed is not the target)				
5.1.3	5.1.3 Biological resource use: Hunting & collecting terrestrial animals: Persecution/control				
5.1.4	5.1.4 Biological resource use: Hunting & collecting terrestrial animals: Motivation Unknown/Unrecorded				
5.2.1	5.2.1 Biological resource use: Gathering terrestrial plants: Intentional use (species being assessed is the target)				
5.2.2	5.2.2 Biological resource use: Gathering terrestrial plants: Unintentional effects (species being assessed is not the target)				
5.2.3	5.2.3 Biological resource use: Gathering terrestrial plants: Persecution/control				
5.2.4	5.2.4 Biological resource use: Gathering terrestrial plants:				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	Motivation Unknown/Unrecorded				
5.3.1	5.3.1 Biological resource use: Logging & wood harvesting: Intentional use: subsistence/small scale (species being assessed is the target [harvest]				
5.3.2	5.3.2 Biological resource use: Logging & wood harvesting: Intentional use: large scale (species being assessed is the target)[harvest]				
5.3.3	5.3.3 Biological resource use: Logging & wood harvesting: Unintentional effects: subsistence/small scale (species being assessed is not the target)[harvest]		Loss of essential food resources as a result of logging.	x	x
5.3.4	5.3.4 Biological resource use: Logging & wood harvesting: Unintentional effects: large scale (species being assessed is not the target)[harvest]				
5.3.5	5.3.5 Biological resource use: Logging & wood harvesting: Motivation Unknown/Unrecorded				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
5.4.1	5.4.1 Biological resource use: Fishing & harvesting aquatic resources: Intentional use: subsistence/small scale (species being assessed is the target)[harvest]				
5.4.2	5.4.2 Biological resource use: Fishing & harvesting aquatic resources: Intentional use: large scale (species being assessed is the target)[harvest]				
5.4.3	5.4.3 Biological resource use: Fishing & harvesting aquatic resources: Unintentional effects: subsistence/small scale (species being assessed is not the target)[harvest]				
5.4.4	5.4.4 Biological resource use: Fishing & harvesting aquatic resources: Unintentional effects: large scale (species being assessed is not the target)[harvest]				
5.4.5	5.4.5 Biological resource use: Fishing & harvesting aquatic resources: Persecution/control				
5.4.6	5.4.6 Biological resource use: Fishing & harvesting aquatic				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	resources: Motivation Unknown/Unrecorded				
6.1	6.1 Human intrusions & disturbance: Recreational activities				
6.2	6.2 Human intrusions & disturbance: War, civil unrest & military exercises		Political instability in the region makes it very difficult to work here.	x	
6.3	6.3 Human intrusions & disturbance: Work & other activities				
7.1.1	7.1.1 Natural system modifications: Fire & fire suppression: Increase in fire frequency/intensity				
7.1.2	7.1.2 Natural system modifications: Fire & fire suppression: Suppression in fire frequency/intensity				
7.1.3	7.1.3 Natural system modifications: Fire & fire suppression: Trend Unknown/Unrecorded				
7.2.1	7.2.1 Natural system modifications: Dams & water management/use: Abstraction of surface water (domestic use)				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
7.2.2	7.2.2 Natural system modifications: Dams & water management/use: Abstraction of surface water (commercial use)				
7.2.3	7.2.3 Natural system modifications: Dams & water management/use: Abstraction of surface water (agricultural use)				
7.2.4	7.2.4 Natural system modifications: Dams & water management/use: Abstraction of surface water (unknown use)				
7.2.5	7.2.5 Natural system modifications: Dams & water management/use: Abstraction of ground water (domestic use)				
7.2.6	7.2.6 Natural system modifications: Dams & water management/use: Abstraction of ground water (commercial use)				
7.2.7	7.2.7 Natural system modifications: Dams & water management/use: Abstraction of ground water (agricultural use)				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
7.2.8	7.2.8 Natural system modifications: Dams & water management/use: Abstraction of ground water (unknown use)				
7.2.9	7.2.9 Natural system modifications: Dams & water management/use: Small dams				
7.2.10	7.2.10 Natural system modifications: Dams & water management/use: Large dams				
7.2.11	7.2.11 Natural system modifications: Dams & water management/use: Dams (size unknown)				
7.3	7.3 Natural system modifications: Other ecosystem modifications				
8.1.1	8.1.1 Invasive & other problematic species, genes & diseases: Invasive non-native/alien species/diseases: Unspecified species				
8.1.2	8.1.2 Invasive & other problematic species, genes & diseases: Invasive non-native/alien species/diseases: Named species				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
8.2.1	8.2.1 Invasive & other problematic species, genes & diseases: Problematic native species/diseases: Unspecified species				
8.2.2	8.2.2 Invasive & other problematic species, genes & diseases: Problematic native species/diseases: Named species				
8.3	8.3 Invasive & other problematic species, genes & diseases: Introduced genetic material				
8.4.1	8.4.1 Invasive & other problematic species, genes & diseases: Problematic species/diseases of unknown origin: Unspecified species				
8.4.2	8.4.2 Invasive & other problematic species, genes & diseases: Problematic species/diseases of unknown origin: Named species				
8.5.1	8.5.1 Invasive & other problematic species, genes & diseases: Viral/prion-induced diseases: Unspecified "species" (disease)				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
8.5.2	8.5.2 Invasive & other problematic species, genes & diseases: Viral/prion-induced diseases: Named "species" (disease)				
8.6	8.6 Invasive & other problematic species, genes & diseases: Diseases of unknown cause				
9.1.1	9.1.1 Pollution: Domestic & urban waste water: Sewage				
9.1.2	9.1.2 Pollution: Domestic & urban waste water: Run-off				
9.1.3	9.1.3 Pollution: Domestic & urban waste water: Type Unknown/Unrecorded				
9.2.1	9.2.1 Pollution: Industrial & military effluents: Oil spills		People intentionally cut crude oil pipelines to steal oil. These cannot be repaired quickly resulting in pollution with leaked oil.	x	
9.2.2	9.2.2 Pollution: Industrial & military effluents: Seepage from mining				
9.2.3	9.2.3 Pollution: Industrial & military effluents: Type Unknown/Unrecorded				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
9.3.1	9.3.1 Pollution: Agricultural & forestry effluents: Nutrient loads				
9.3.2	9.3.2 Pollution: Agricultural & forestry effluents: Soil erosion, sedimentation				
9.3.3	9.3.3 Pollution: Agricultural & forestry effluents: Herbicides & pesticides				
9.3.4	9.3.4 Pollution: Agricultural & forestry effluents: Type Unknown/Unrecorded				
9.4	9.4 Pollution: Garbage & solid waste				
9.5.1	9.5.1 Pollution: Air-borne pollutants: Acid rain				
9.5.2	9.5.2 Pollution: Air-borne pollutants: Smog				
9.5.3	9.5.3 Pollution: Air-borne pollutants: Ozone				
9.5.4	9.5.4 Pollution: Air-borne pollutants: Type Unknown/Unrecorded				
9.6.1	9.6.1 Pollution: Excess energy: Light pollution				
9.6.2	9.6.2 Pollution: Excess energy: Thermal pollution				
9.6.3	9.6.3 Pollution: Excess energy: Noise pollution				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
9.6.4	9.6.4 Pollution: Excess energy: Type Unknown/Unrecorded				
10.1	10.1 Geological events: Volcanoes				
10.2	10.2 Geological events: Earthquakes/tsunamis				
10.3	10.3 Geological events: Avalanches/landslides				
11.1	11.1 Climate change & severe weather: Habitat shifting & alteration				
11.2	11.2 Climate change & severe weather: Droughts				
11.3	11.3 Climate change & severe weather: Temperature extremes				
11.4	11.4 Climate change & severe weather: Storms & flooding				
11.5	11.5 Climate change & severe weather: Other impacts				
12.1	12.1 Other threat				

References

Werre, J.L.R. 2000. Ecology and Behavior of the Niger Delta Red Colobus Monkey (*Procolobus badius epieni*). Ph.D. Thesis, City University of New York.

Appendix 1. Assessor Self-Review

1. **Disclose any potential conflicts of interest which could bias the assessment**.
   No conflicts of interest to disclose.

2. **Is there any discrepancy between this assessment and the Red List assessment for the species? If so, comment on the likely reason for this discrepancy.**
   No.

3. **Review the impact that you assigned to the various threats and conservation actions. Would the trajectory of the species be very different if other choices were made? If so, review your justification for these choices. If appropriate, widen the bounds on tabs 4 and 5-8 (change the lower and upper plausible values) to reflect the uncertainty introduced by the possibility of these other choices. How, if at all, did this review question cause this assessment to change? If no changes were needed, please write "no changes".**
   No changes.