



## Review of baseline study A:



Current data gaps and status of data acquisition for climate change and protected areas in West Africa



## Révision de l'étude préliminaire A:



Identification des carences actuelles et de l'état de l'acquisition des données pour le changement climatique et les aires protégées en Afrique de l'Ouest

# Plan of the presentation

- Aims of baseline study A
- Review of baseline study
  - A) Collation of data on PAs from the World Database on Protected Areas (WDPA)
  - B) Identification of additional GIS datasets
  - C) Collation of GIS data and information on climate change
- Additional datasets and analyses
  - UN Millennium Development Goals analysis
  - Additional socio-economic datasets

# Number and reported coverage of PAs in West Africa

Country	Status	Number of PAs	Total Reported Area (km <sup>2</sup> )
Gambia	Designated	5	142
	<i>Proposed</i>	2	230
Mali	Designated	10	26,004
	<i>Proposed</i>	3	5672
Sierra Leone	Designated	39	2,923
	<i>Proposed</i>	19	2252
Chad	Designated	9	114,940
	<i>Proposed</i>	4	14203
Togo	Designated	90	6,041
Burkina Faso	Designated	72	38,226
	<i>Proposed</i>	1	450
Côte d'Ivoire	Designated	240	39,219
Ghana	Designated	302	36,660
	<i>Proposed</i>	11	790

# Internationally recognised PAs

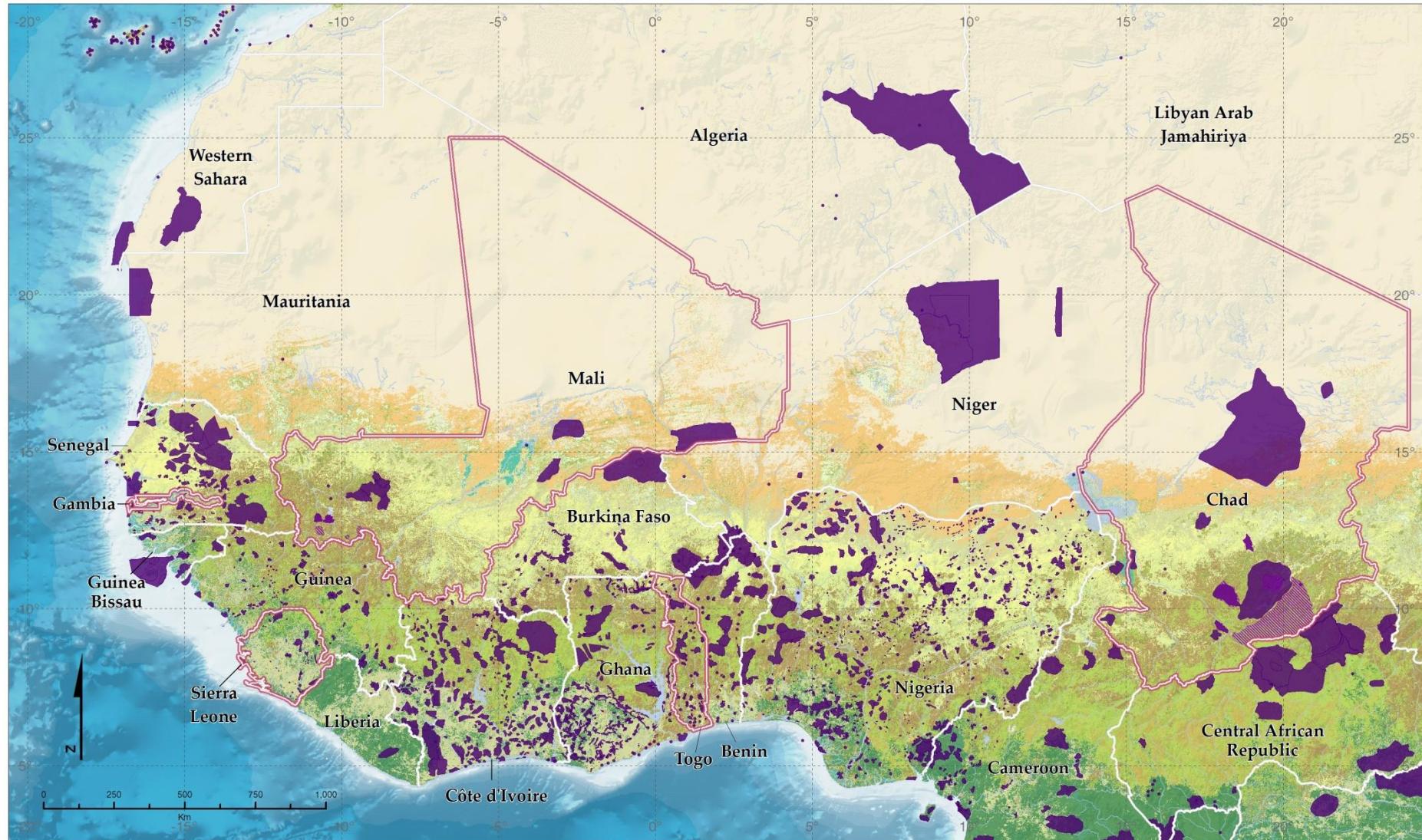
Country	Number	International Designation	Total Reported area (Km <sup>2</sup> )
Gambia	3	Ramsar	312
Mali	1	UNESCO-MAB Biosphere Reserve	25,000
	1	Ramsar	41,195
	1	World Heritage Site	3,274
Sierra Leone	1	Ramsar	2,950
Chad	6	Ramsar	124,051
Togo	4	Ramsar	12,104
Burkina Faso	2	UNESCO-MAB Biosphere Reserve	5,320
	3	Ramsar	2,992
Côte d'Ivoire	2	UNESCO-MAB Biosphere Reserve	17,700
	6	Ramsar	1,273
	2	World Heritage Site	11,714
	1	World Heritage Site	3,300
Ghana	1	UNESCO-MAB Biosphere Reserve	78
	6	Ramsar	1,784

# Criteria for data to be included in WDPA

- Fit the IUCN definition of a PA.
- Spatial data *must* be provided, and represented by ArcGIS shapefiles
- A number of ‘minimum’ attributes for each protected area must be provided
- Source information must be provided

# Protected Areas within West Africa

## Climate Change and Protected Areas in West Africa (CCPAWA)



### Protected Areas

WDPA 2010

New data 2010



Sources: World Database on Protected Areas (WDPA), UNEP-WCMC, December 2010  
 Coordinate System: Geographic (WGS84)  
 Map compiled by: UNEP-WCMC  
 Date printed: January 2011  
 Map code: REG\_PA-2

Contact email: [protectedareas@unep-wcmc.org](mailto:protectedareas@unep-wcmc.org)  
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# Calculation of a Data Quality Index for PA information held in the WDPA

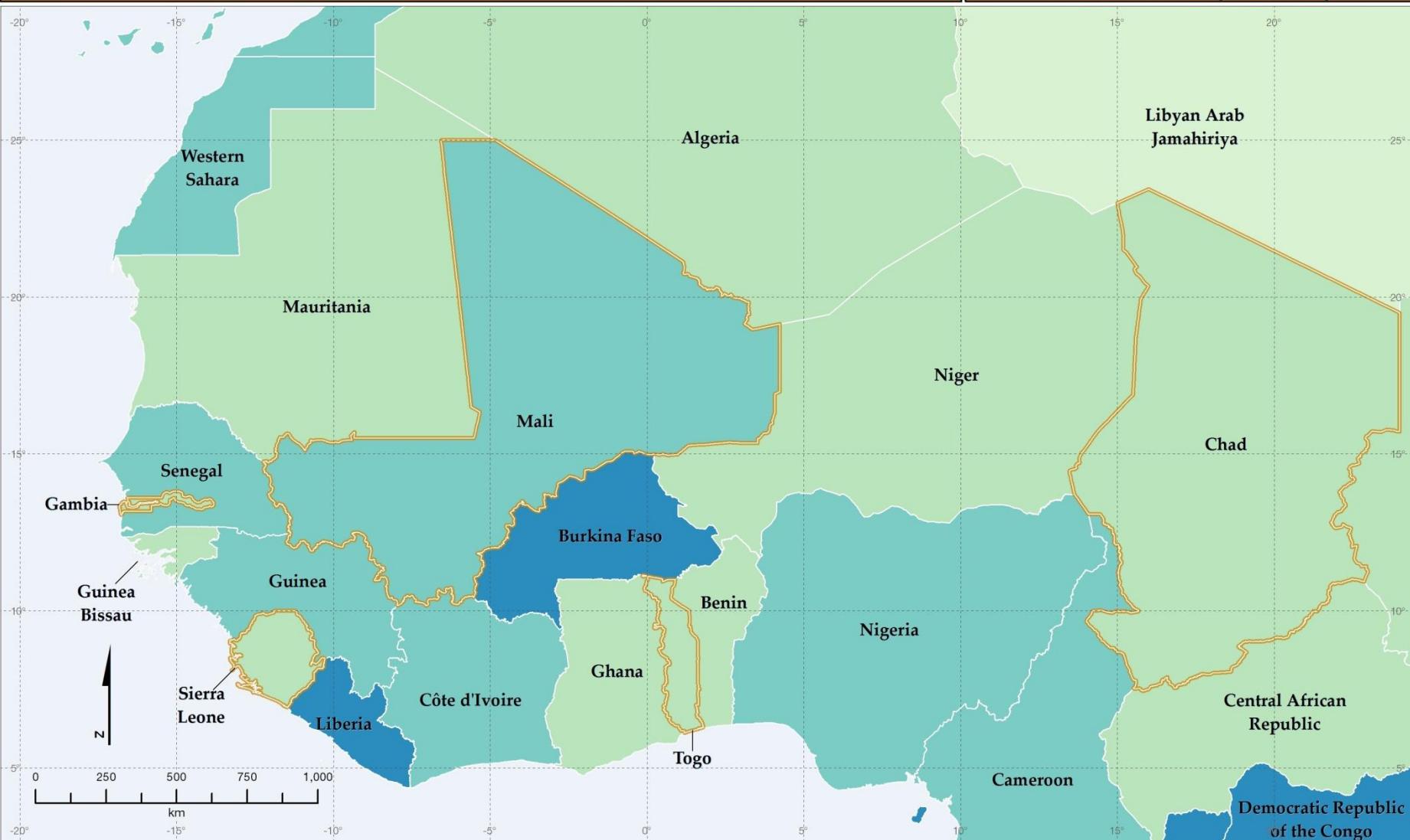
- Data quality was calculated based on 3 indicators:
  1. Percentage of boundary data for each country.
  2. Recency of data.
  3. Completeness of the attributes.
- The overall quality of a country's dataset is given by the sum of these three indicators.

# Quality of protected areas information held in the WDPA

Country	Nb points	Nb polygons	Nb sites	% polygons	Score A	Score A +50%	Recency	New date	Score B	Attribute quality	Score C	Total 05	TOTAL	Quality
Gambia	3	4	7	0.57	0.50	0.75	1980	1980	1.00	low	1.00	2.75	2.50	Poor
Mali	3	10	13	0.77	0.25	0.38	2003	2003	0.50	medium	0.50	1.38	1.25	Good
Sierra Leone	24	34	58	0.59	0.50	0.75	1999	1999	1.00	low	1.00	2.75	2.50	Poor
Chad	4	9	13	0.69	0.25	0.38	1987	1987	1.00	low	1.00	2.38	2.25	Poor
Togo	31	59	90	0.66	0.25	0.38	1987	1987	1.00	low	1.00	2.38	2.25	Poor
Burkina Faso	1	72	73	0.99	0.00	0.00	2003	2003	0.50	medium	0.50	1.00	1.00	Very Good
Côte d'Ivoire	6	234	240	0.98	0.00	0.00	1980	1980	1.00	low	1.00	2.00	2.00	Good
Ghana	59	254	313	0.81	0.25	0.38	1999	1999	1.00	low	1.00	2.38	2.25	Poor

# Protected Areas Data Quality Assessment

## Climate Change and Protected Areas in West Africa (CCPAWA)



### Legend

- High quality data
- Good data but need improving

- Data deficient in key aspects
- Poor data



Sources: World Database on Protected Areas (WDPA)  
 UNEP-WCMC, December 2010  
 Coordinate System: Geographic (WGS84)  
 Map compiled by: UNEP-WCMC  
 Date printed: January 2011  
 Map code: REG\_Q\_1

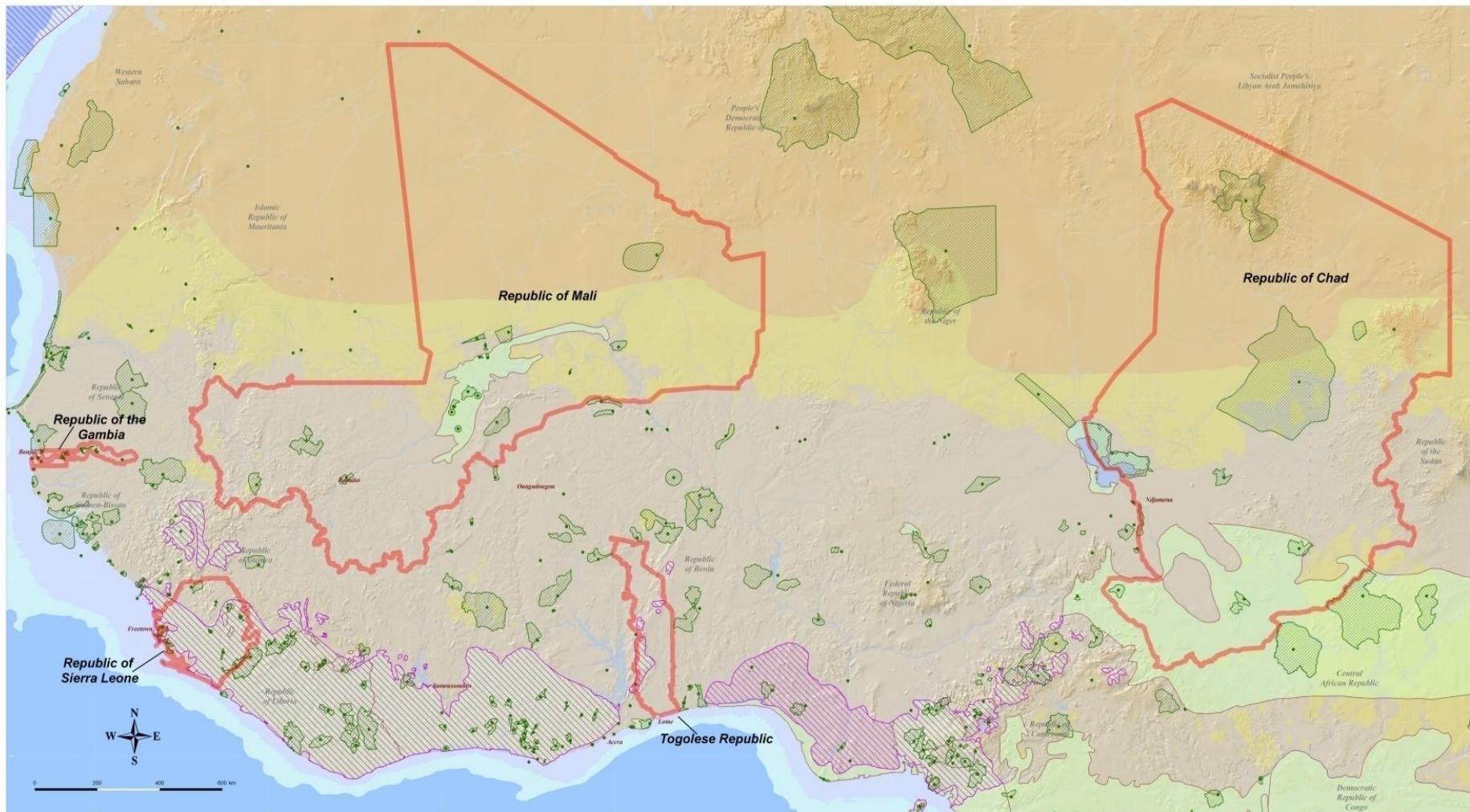
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# Other datasets/maps

- Biodiversity and Conservation Priority areas
- Transboundary PAs
- Population Density
- Human Influence Index
- UN Millennium Development Goals analysis

# REG\_BIO: Biodiversity & Conservation Priority in West Africa

Climate-Proofing Protected Areas in West Africa Project (CPPAWA)



## Biodiversity and Conservation Priority

- BirdLife's Important Bird Areas (IBA)
- Conservation International Biodiversity Hotspots
- WWF Global 200 Ecoregions

## Project Focus

- Rivers
- Water Bodies
- Cities

## Last of the Wild

The Last of the Wild represents the least influenced (most wild) areas of major terrestrial biomes. Most wild in each biome are defined as areas with human  
Tropical and subtropical grasslands, savannas, and shrublands  
Deserts and Xeric Shrublands

Coordinate System: Geographic (WGS84)  
Map compiled by UNEP-WCMC Conservation Monitoring Centre (CMC).  
Map compiled by UNEP-WCMC. Last updated 08 July 2008. For further  
Context details, UNEP-WCMC, Protected Areas Programme, 210  
Chestnut Road, Cambridge, CB4 3UE, United Kingdom. Email:  
protectedareas@wcmc.org

Map produced using ESRI ArcGIS Software  
Last updated: June 2008

Sources  
BirdLife, BirdLife International (2008). West African Important Bird Area (IBA) Database. Last updated 08 July 2008. For further  
information please visit [www.birdlife.org](http://www.birdlife.org)  
CI (Conservation International), Center for Applied Biodiversity Science  
IUCN (International Union for the Conservation of Nature), Gland, Switzerland  
WWF Global 200 Ecoregions. Olsen, D. M. and E. Dinerstein. The Global  
200: A Representation of Ecoregions Containing the Majority of Earth's  
Biodiversity. Last of the Wild Data Version 2. 2008 (LAW2). Global Last  
of the Wild Database. Last updated 08 July 2008. For further  
information please visit [www.wcmc.org](http://www.wcmc.org)

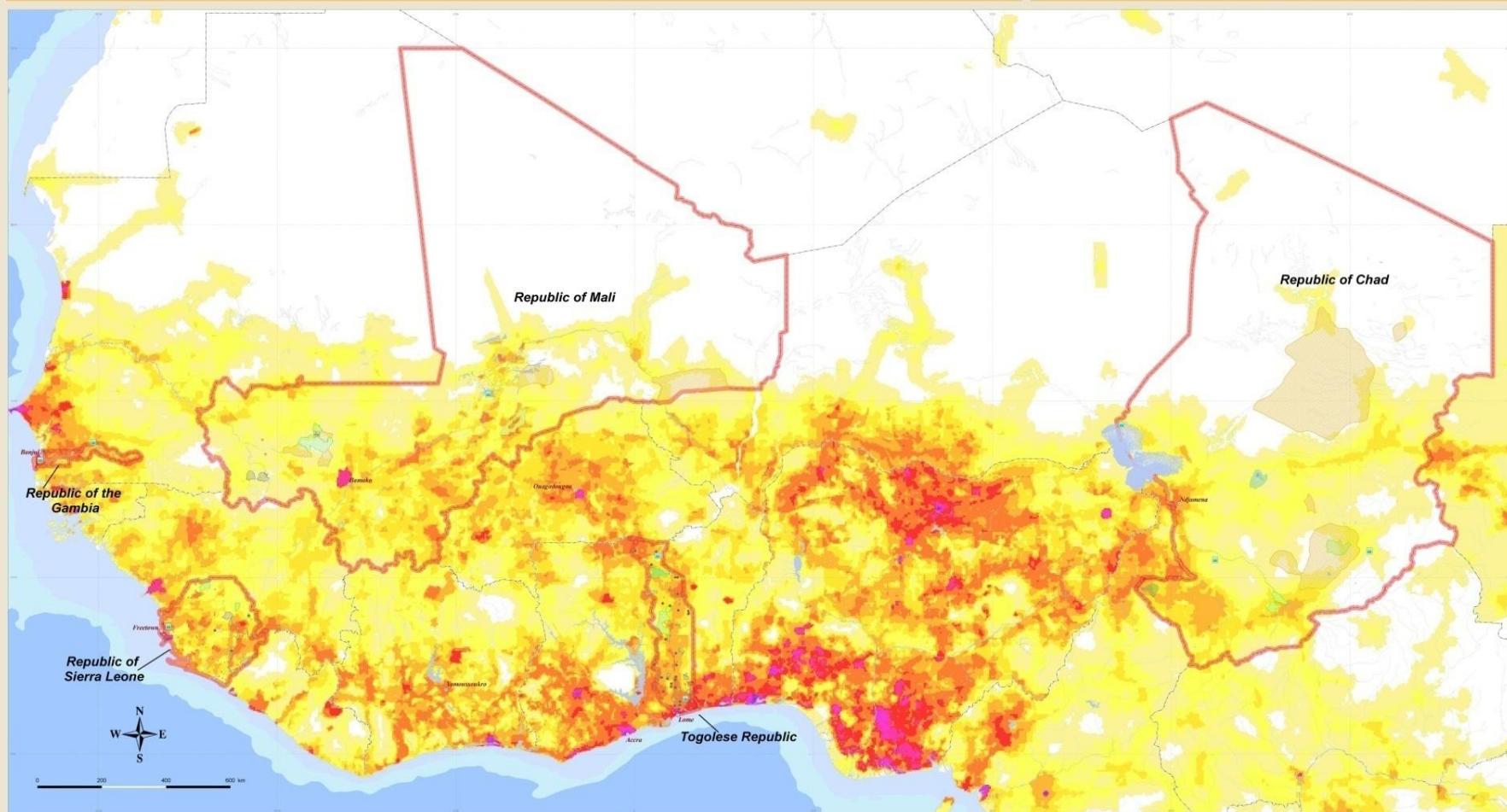
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# Transboundary Protected Areas in West Africa

Country	Internationally Adjoining Protected Area	Protected Area Names	Category	Total Area (Ha)
Cameroon		Kalamaloue National Park	II	368,294
Chad		Mandelia Faunal Reserve	IV	
Nigeria		Chad Basin National Park	II	
Sierra Leone	Sierra Leone - Liberia Transboundary Peace Park	Gola North Forest Reserve	Unknown	255,000
		Gola East Forest Reserve	Unknown	
Liberia		Lofa Forest Reserve	Unknown	
		Foya Forest Reserve	Unknown	

# REG\_POP-1: Population Density within West Africa

Climate-Proofing Protected Areas in  
West Africa Project (CPPAWA)



National Protected Areas	
IUCN Management Category	
• Ia	
• II	
• IV	
• VI	
• Not Known	
• Proposed Protected Areas	

International Protected Areas	
Internationally recognized	
• Wetlands of International Importance (Ramsar)	
• World Heritage Convention (Natural, Mixed)	
• UNESCO-MAB Biosphere Reserve	

Population Density (2000)	
0 - 0.1	50 - 100
0.1 - 5	100 - 250
5 - 10	10,000 - 25,000
10 - 25	25,000 - 50,000
25 - 50	50,000 - 100,000
50 - 100	5,000 - 10,000
100 - 250	10,000 - 25,000
250 - 500	25,000 - 50,000
500 - 1,000	50,000 - 100,000
1,000 - 2,500	
2,500 - 5,000	

Coordinate System: UTM84  
Map produced by: UNEP-WCMC Climate Change and Protected Areas Programme, 278 Huntington Road, Cambridge, UK, CB3 0DL, email: [climate@wcmc.org.uk](mailto:climate@wcmc.org.uk)  
Map produced using ESRI ArcGIS Software.

The map is a composite of data from the UNFCCC and the UN World Population Prospects 2005.

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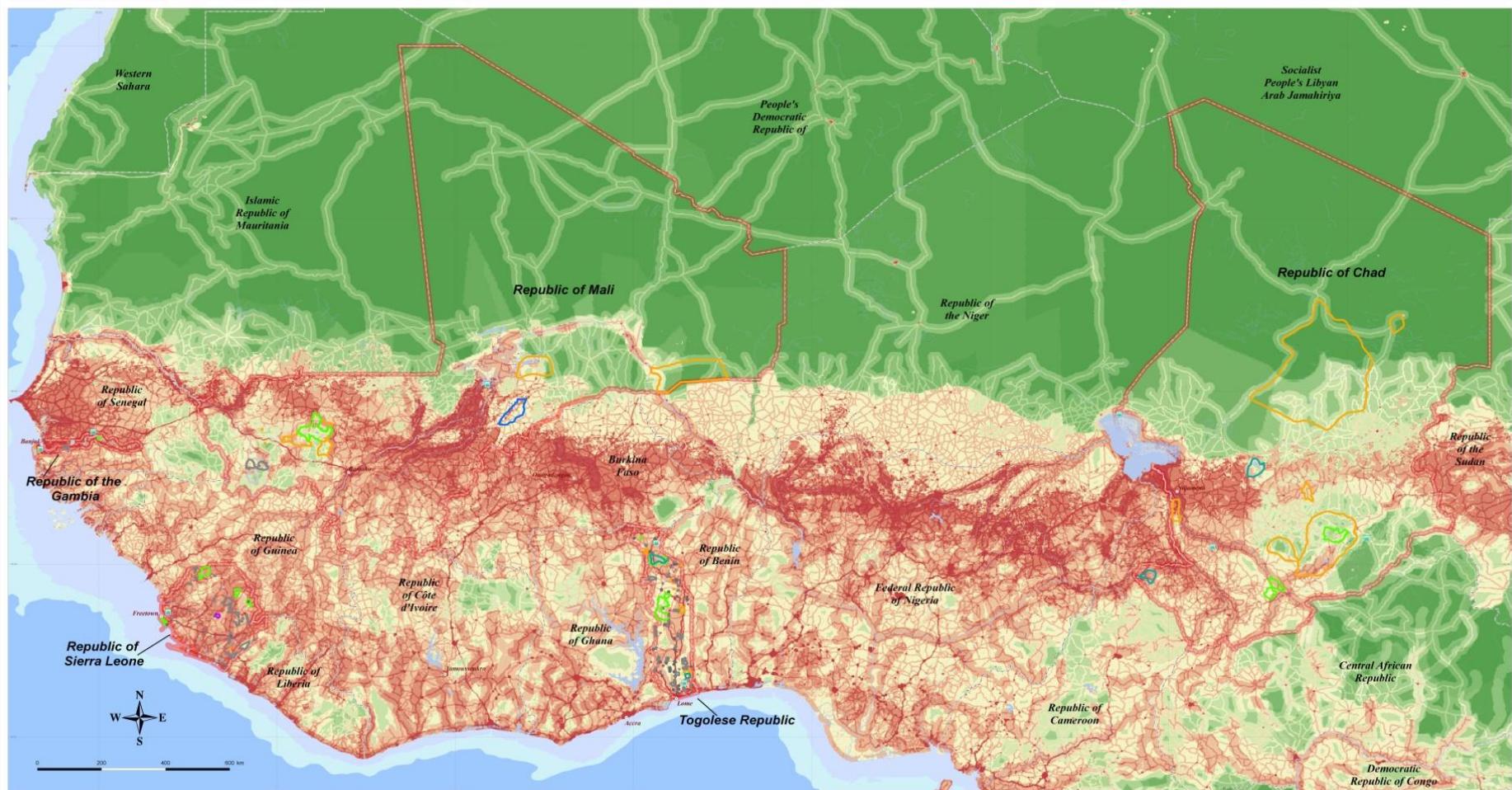
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# REG\_HII-3: Human Influence Index within West Africa

Climate-Proofing Protected Areas in West Africa Project (CPPAWA)



National Protected Areas  
IUCN Management Category

International Protected Areas  
Internationally recognized

Human Influence Index  
Value  
High : 64  
Low : 0

Project Focus  
Rivers  
Water Bodies  
Cities

The Human Influence Index (HII) is a measure of direct human influence on terrestrial ecosystems using the best available data sets on human settlement (population density, built-up areas), access roads, railroads, navigable rivers, and coastline, landscape transformation (land use / land cover) and electric power infrastructure (night-time lights). HII values range from 0 to 64. Zero values represent no human influence and 64 represents maximum human influence possible using all 8 measures of human presence.

The dataset is produced by the Wildlife Conservation Society (WCS) and the Columbia University Center for International Earth Science Information Network (CIESIN).

Coordinate System: Geographic (WGS84)  
Map compiled by UNEP-WCMC Conservation Monitoring Centre (UNEP-WCMC-CMC) for the Climate-Proofing Protected Areas in West Africa Project, 21st International Union for the Conservation of Nature (IUCN) World Congress, 2010, Cape Town, South Africa.  
Map produced using ESRI ArcGIS Software.

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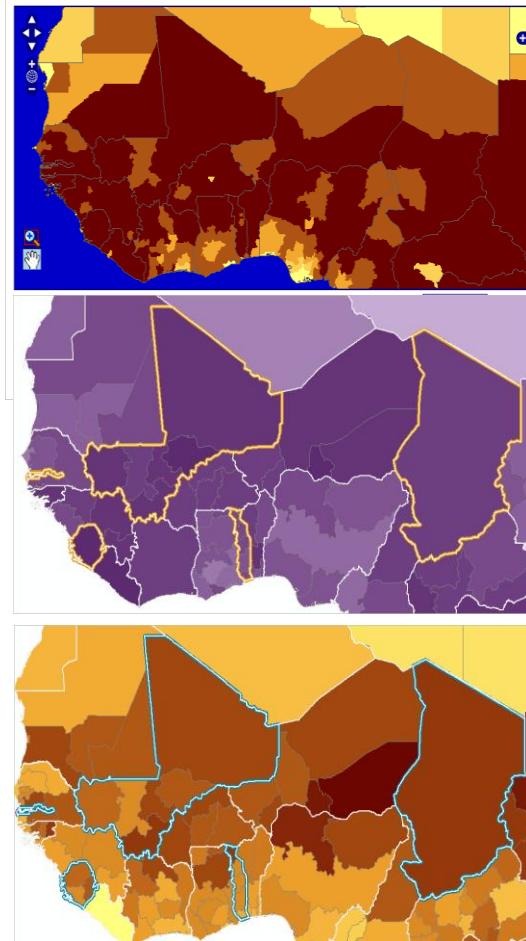
# UN Millennium Development Goals Analysis

- The WDPA is used to report progress towards the UN Millennium Development Goals.
- Proportion of terrestrial and marine areas protected for each country:

Country	Proportion of terrestrial and marine areas protected (%)
Chad	9.39
Gambia	1.28
Mali	2.43
Sierra Leone	4.96
Togo	11.26
Burkina Faso	13.91
Cote d'Ivoire	21.82
Ghana	13.31

# Other socio-economic datasets

- Poverty Index for sub-national administrative units
- Global Subnational Infant Mortality Rates (CIESIN)
- Global Subnational Prevalence of Child Malnutrition (CIESIN)



# Issues with data quality and proposed solutions

The data quality analysis shows that:

- In-country capacity issues have prevented effective management of PA and CC datasets.
- Acquisition of up to date datasets is an issue.

To overcome the issues, the project will:

- Additional contact points are contacted both within governments and other organisations
- National consultants are hired for data collection activities

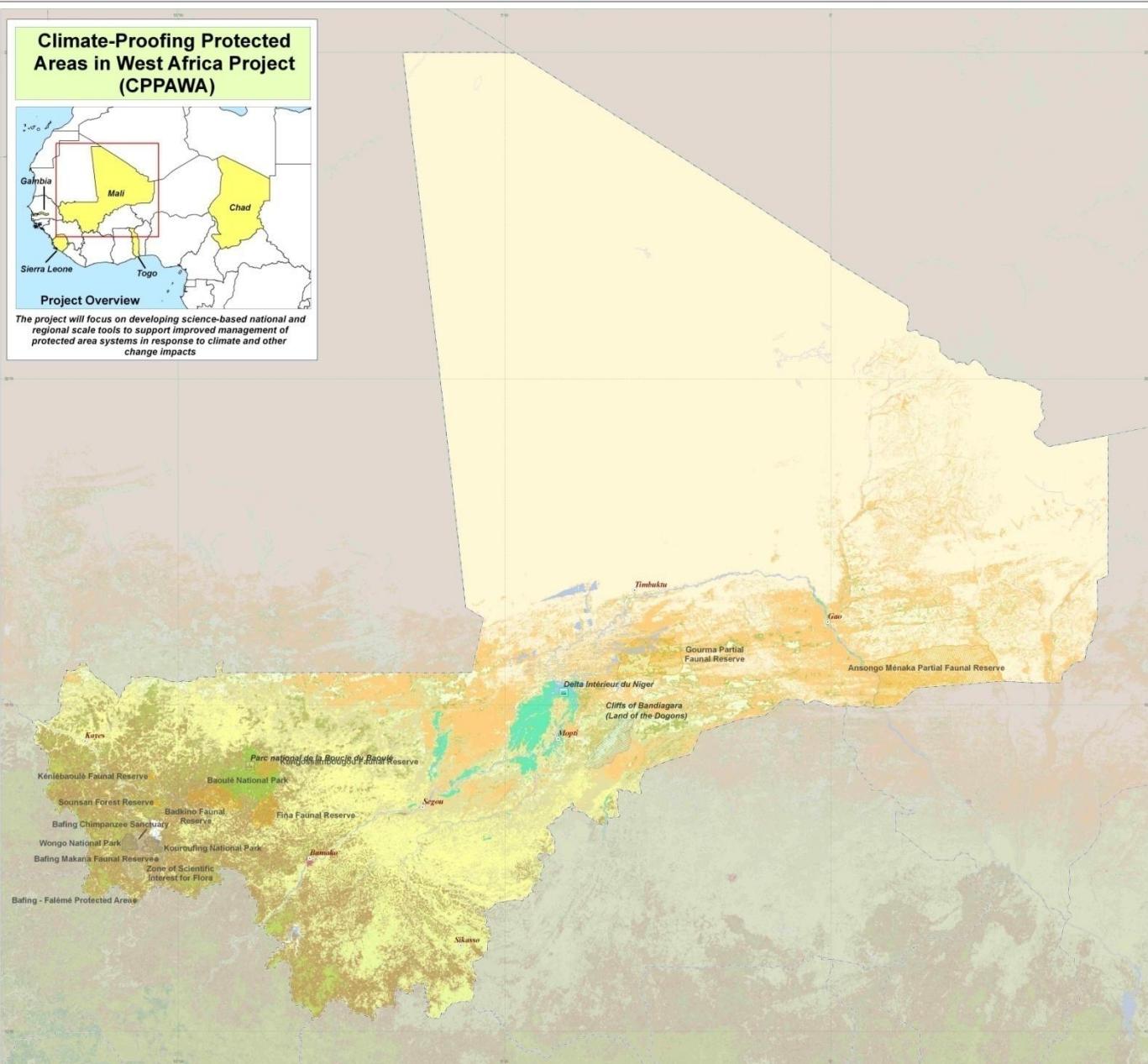
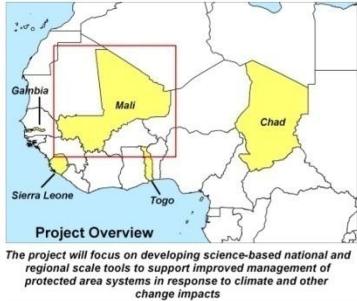




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**Un monde où la biodiversité compte**

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## Climate-Proofing Protected Areas in West Africa Project (CPPAWA)



## MLI\_PA-3: Protected Areas for the Republic of Mali

### National Protected Areas

#### IUCN Management Category

- II
- IV
- VI
- Not Known
- Proposed Protected Areas

### International Protected Areas

#### Internationally recognized

- Wetlands of International Importance (Ramsar)
- World Heritage Convention (Natural, Mixed)
- UNESCO-MAB Biosphere Reserve
- Cities
- Rivers
- Water Bodies

### Global Land Cover

- Irrigated croplands
- Rainfed croplands
- Mosaic Croplands/Vegetation
- Mosaic Vegetation/Croplands
- Closed/open broadleaved evergreen/semi-deciduous forest
- Closed broadleaved deciduous forest
- Open broadleaved deciduous forest
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- Closed to open mixed broadleaved and needleleaved forest
- Mosaic Forest-Shrubland/Grassland
- Mosaic Grassland/Forest-Shrubland
- Closed to open shrubland
- Closed to open grassland
- Sparse vegetation
- Closed to open broadleaved forest regularly flooded
- Closed broadleaved forest permanently flooded
- Closed to open vegetation regularly flooded
- Artificial areas
- Bare areas



Coordinate system: Geographic (WGS84)

Map compiled by UNEP-World Conservation Monitoring Centre (UNEP-WCMC).  
Contact details: UNEP-WCMC, Protected Areas Programme, 219 Huntingdon Road, Cambridge, CB3 0DZ, United Kingdom. [protectedareas@unep-wcmc.org](mailto:protectedareas@unep-wcmc.org)

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Sources: World Database on Protected Areas (WDPA), compiled by UNEP World Conservation Monitoring Centre (UNEP-WCMC). May 2009.  
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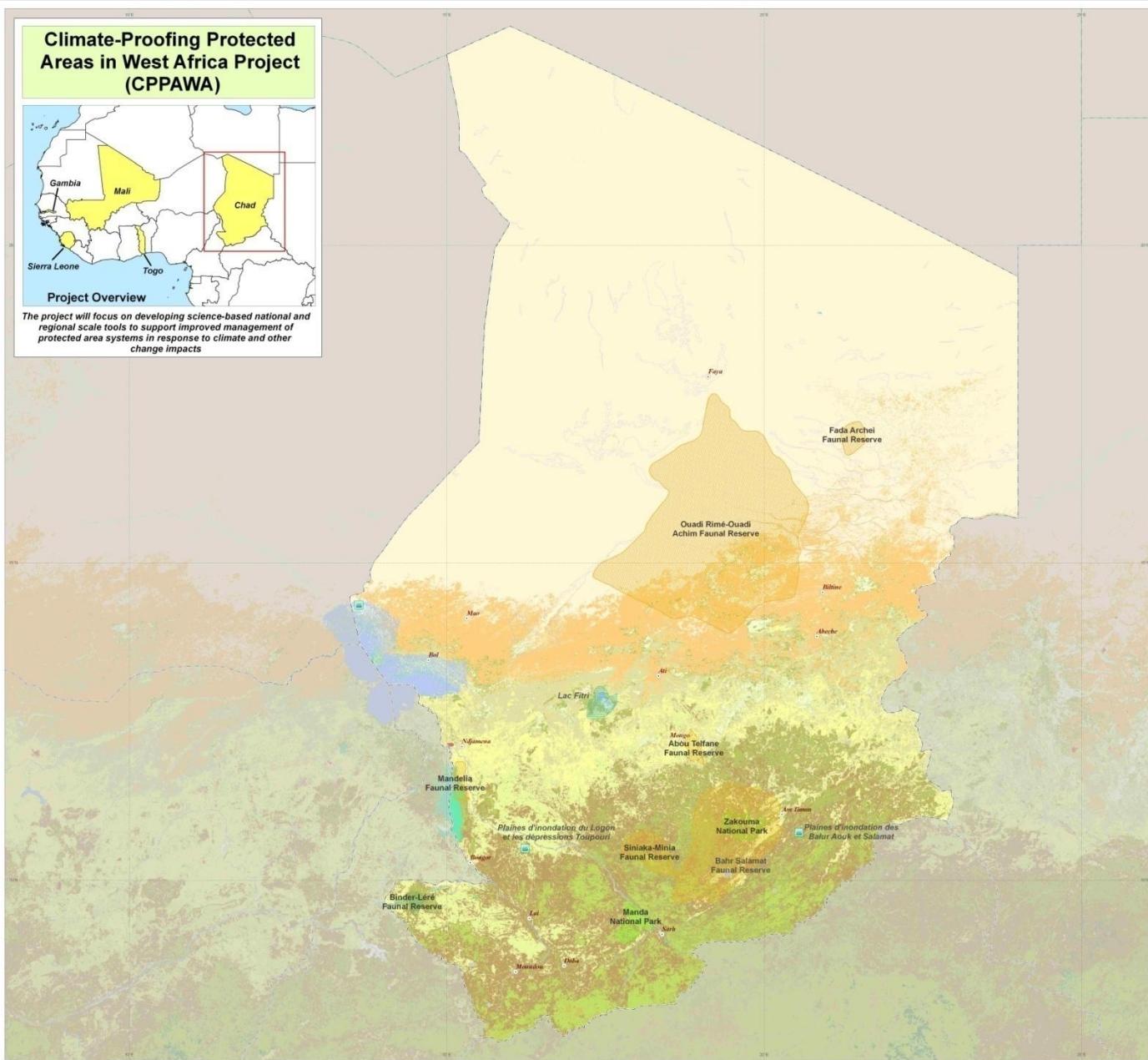


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## Climate-Proofing Protected Areas in West Africa Project (CPPAWA)



The project will focus on developing science-based national and regional scale tools to support improved management of protected area systems in response to climate and other change impacts



## TCD\_PA 1: Protected Areas for the Republic of Chad

### National Protected Areas

#### IUCN Management Category

- II
- IV
- Proposed Protected Areas

### International Protected Areas

#### Internationally recognized

- Wetlands of International Importance (Ramsar)
- UNESCO-MAB Biosphere Reserve

- Cities
- Rivers

- Water Bodies

### Global Land Cover

- Irrigated croplands
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Coordinate system: Geographic (WGS84)

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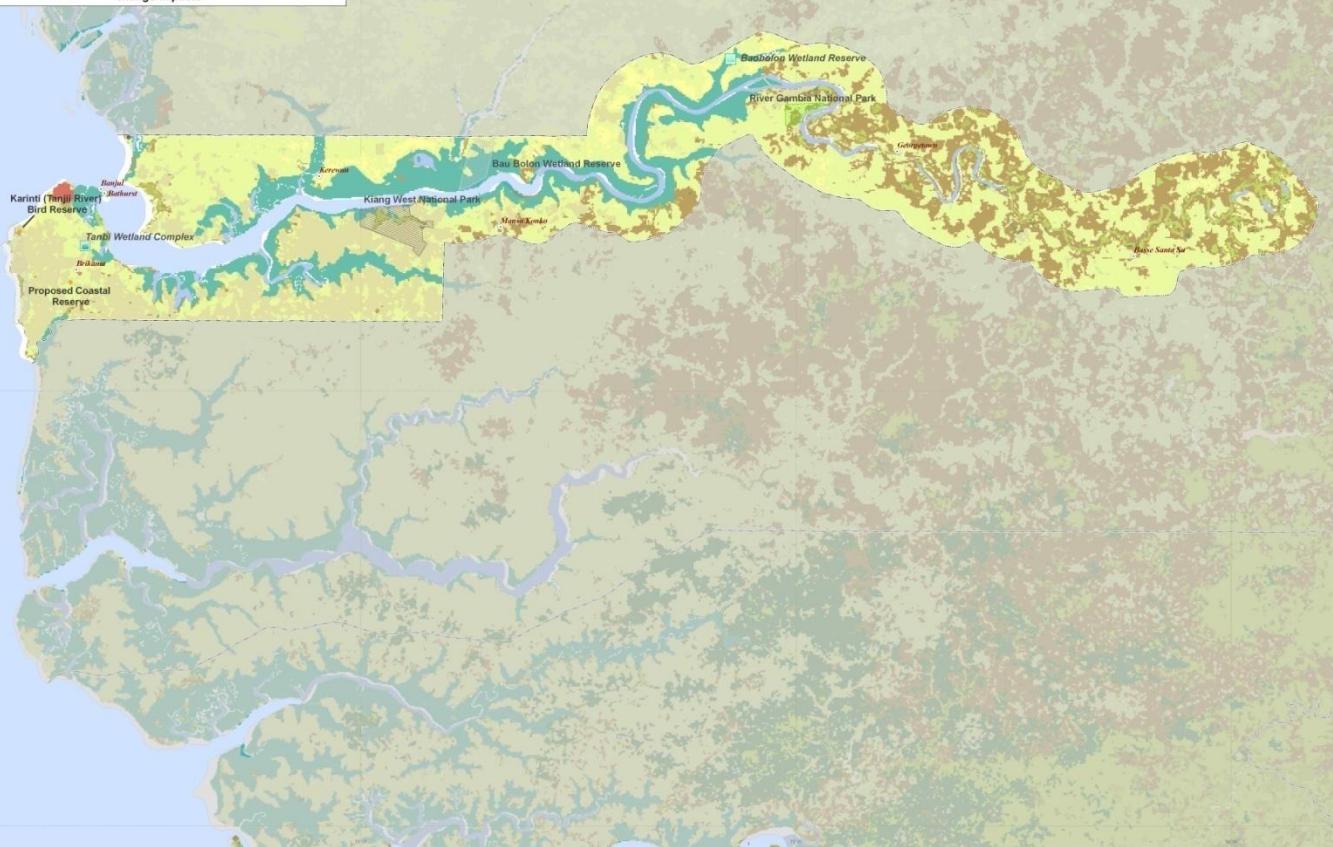
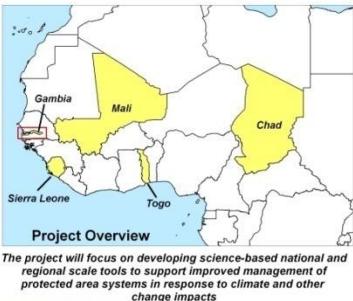
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## Climate-Proofing Protected Areas in West Africa Project (CPPAWA)



## GMB\_PA-2: Protected Areas for the Republic of Gambia

### National Protected Areas

#### IUCN Management Category

- II
- IV
- Not Known
- Proposed Protected Areas

### International Protected Areas

#### Internationally recognized

- Wetlands of International Importance (Ramsar)

- Cities
- Rivers
- Water Bodies

### Global Land Cover

- Irrigated croplands
- Rainfed croplands
- Mosaic Croplands/Vegetation
- Mosaic Vegetation/Croplands
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Coordinate system: Geographic (WGS84)

Map compiled by: UNEP-World Conservation Monitoring Centre (UNEP-WCMC)  
Contact details: UNEP-WCMC, Protected Areas Programme, 210 Huntingdon Road, Cambridge, CB3 0DZ, United Kingdom, +44 1223 315000, [www.wcmc.org.uk](http://www.wcmc.org.uk)

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0

20

40

60 km

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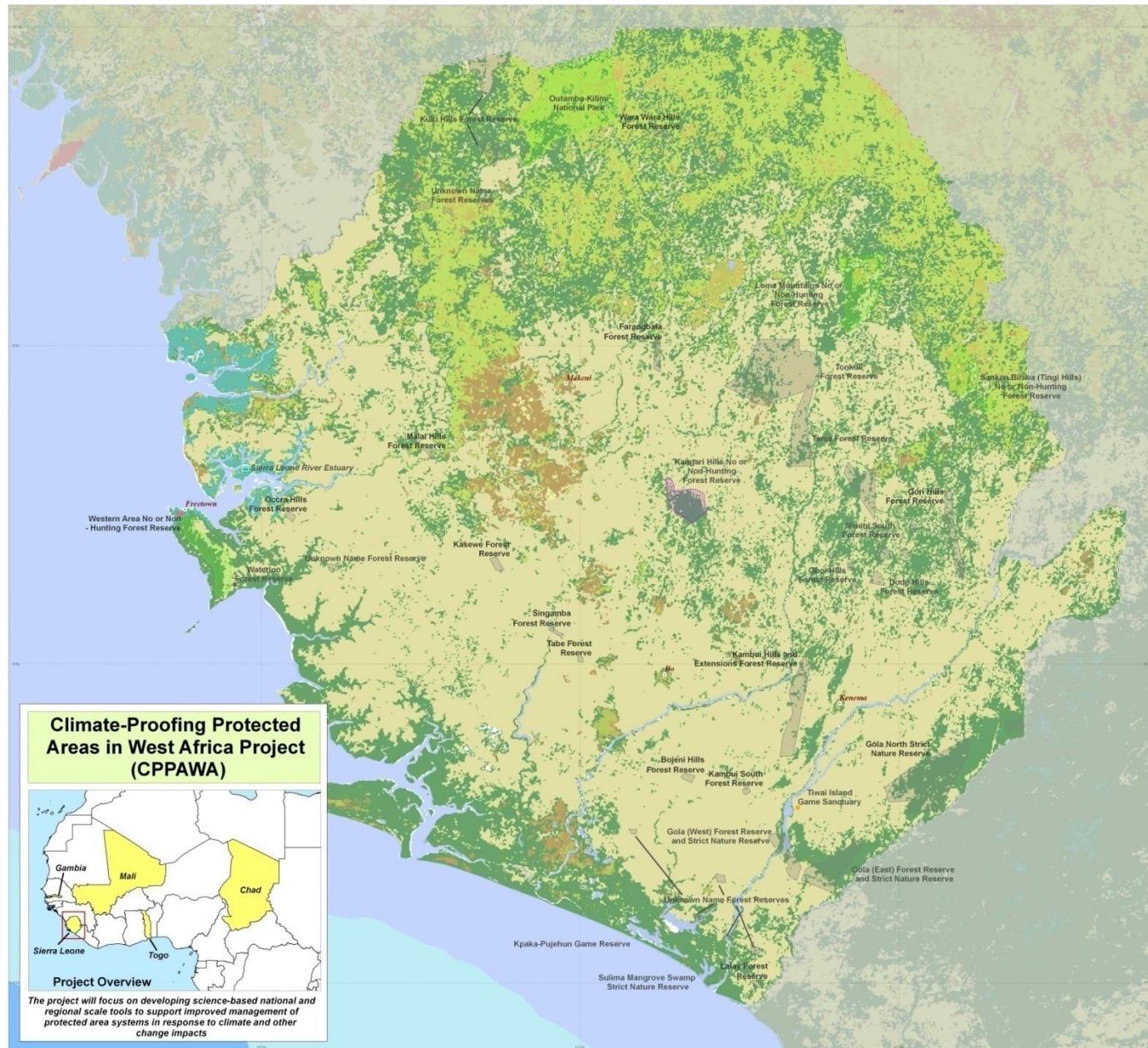
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## SLE\_PA-4: Protected Areas for the Republic of Sierra Leone

### National Protected Areas

#### IUCN Management Category

- II
- IV
- VI
- Not Known
- Proposed Protected Areas

### International Protected Areas

#### Internationally recognized

- Wetlands of International Importance (Ramsar)
- Cities
- Rivers
- Water Bodies

### Global Land Cover

- Irrigated croplands
- Rained croplands
- Mosaic Croplands/Vegetation
- Mosaic Vegetation/Croplands
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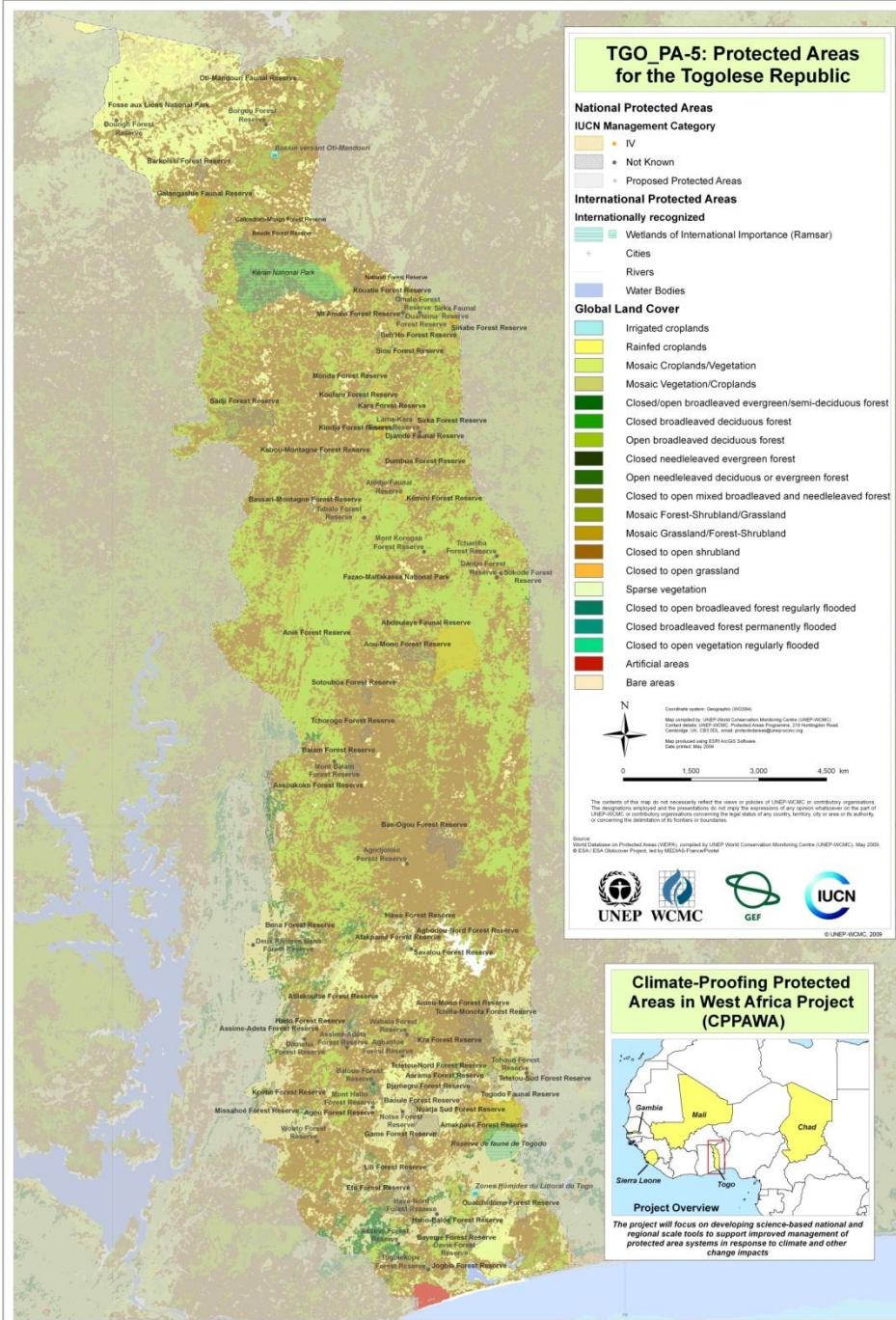


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# Calculation of a Data Quality Index for PA information held in the WDPA

Data quality was calculated based on 3 indicators:

a) Percentage of boundary data for each country.

b) Recency of data.

c) Completeness of the attributes.

Quality assessment	Total
Very poor	3.00+
Poor	2.01 – 2.99
Good	1.01 – 2.00
Very Good	0.00 – 1.00

Year of last complete update	Score B	% of boundary data	Score A	Score A05 (weighted)
Prior to 2000	1	0-10%	1	1.5
2000-2004	0.5	10.1- 60%	0.5	0.75
2005-2008	0.25	60.1-90%	0.25	0.38
2009-2010	0	90.1-100%	0	0
N/A	1			

Completeness of the attributes	Score C
Low (minimum attributes incomplete)	1
Medium (minimum attributes complete)	0.
High (enhanced attributes complete)	5
	0

The overall quality of a country's dataset is given by the sum of these three indicators.