

BID and BIOPAMA

Use of primary biodiversity data and linkages

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BID Closing meeting 13th Nov 2019



▶ **Joint Research Centre**

- European Commission's science and knowledge service
- Research on agriculture, energy, transport, health, environment, IT
- 1500 post-docs over 5 sites

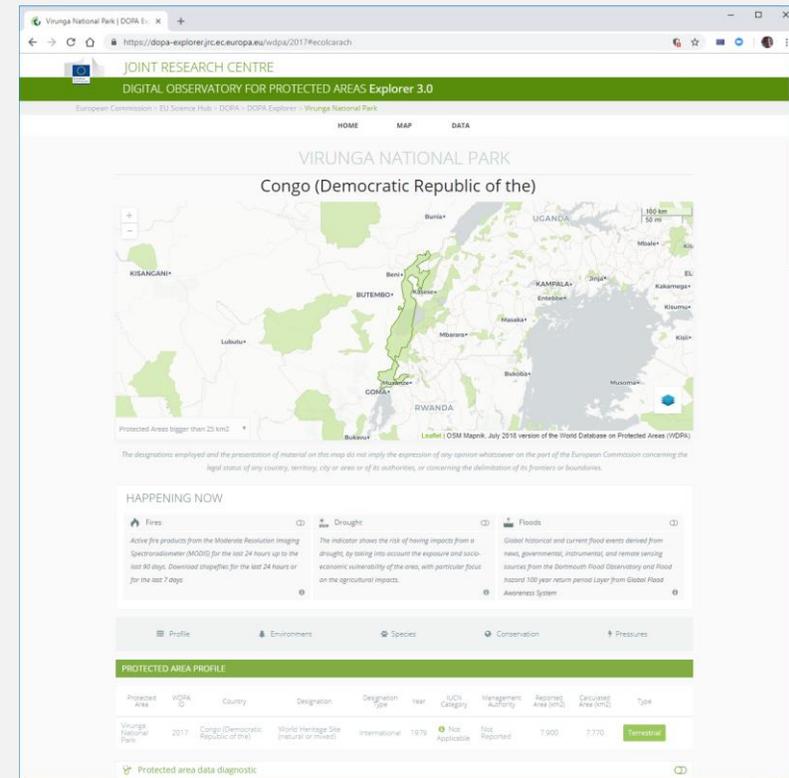
► Joint Research Centre

- Ispra, Northern Italy



► Joint Research Centre

- Digital Observatory for Protected Areas (with UNEP-WCMC)

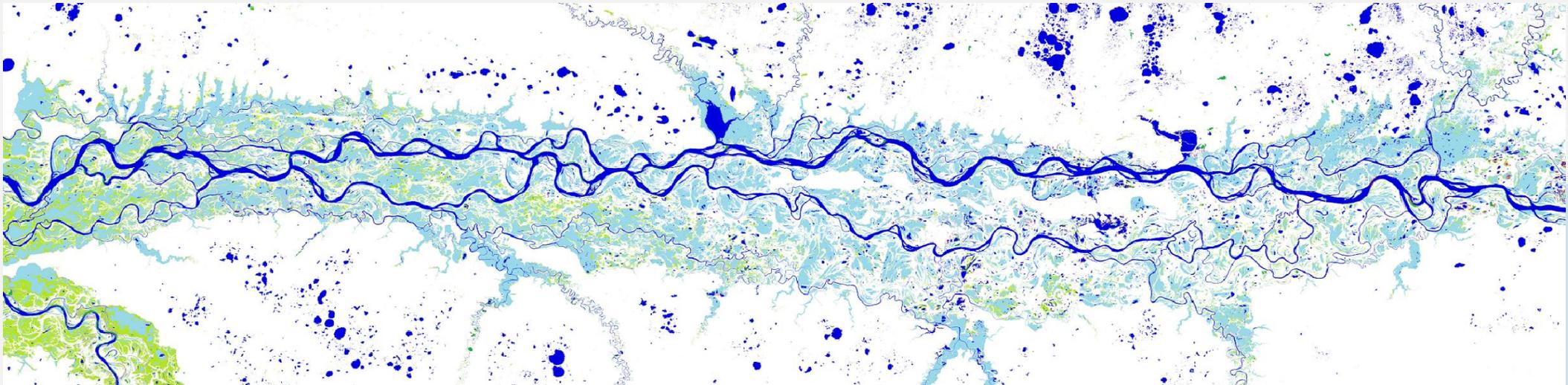


Dubois, G., Bastin, L., Bertzky, B., Mandrici, A., Conti, M., Saura, S., Cottam, A., Battistella, L., Martínez-López, J., Boni, M., Graziano, M. (2016) Integrating multiple spatial datasets to assess protected areas: Lessons learnt from the Digital Observatory for Protected Areas (DOPA). *ISPRS International Journal of Geo-Information* 5: 242.

▶ Joint Research Centre

- Global Surface Water Dataset

Ob River, Western Russia



Jean-Francois Pekel, Andrew Cottam, Noel Gorelick, Alan S. Belward, High-resolution mapping of global surface water and its long-term changes. *Nature* 540, 418-422 (2016).

▶ **BIOPAMA Project**

- €20 million project with IUCN (ends in 2023)
- Biodiversity and Protected Area Management
- Regional knowledge centres in Nairobi, Dakar, Yaoundé, Bridgetown, Apia
- Improve protected area management effectiveness

▶ **JRC Role**

- Knowledge products and tools
- Policy-relevant indicators

▶ IUCN Role

- Development of regional resource hubs
- Funded activities in protected areas



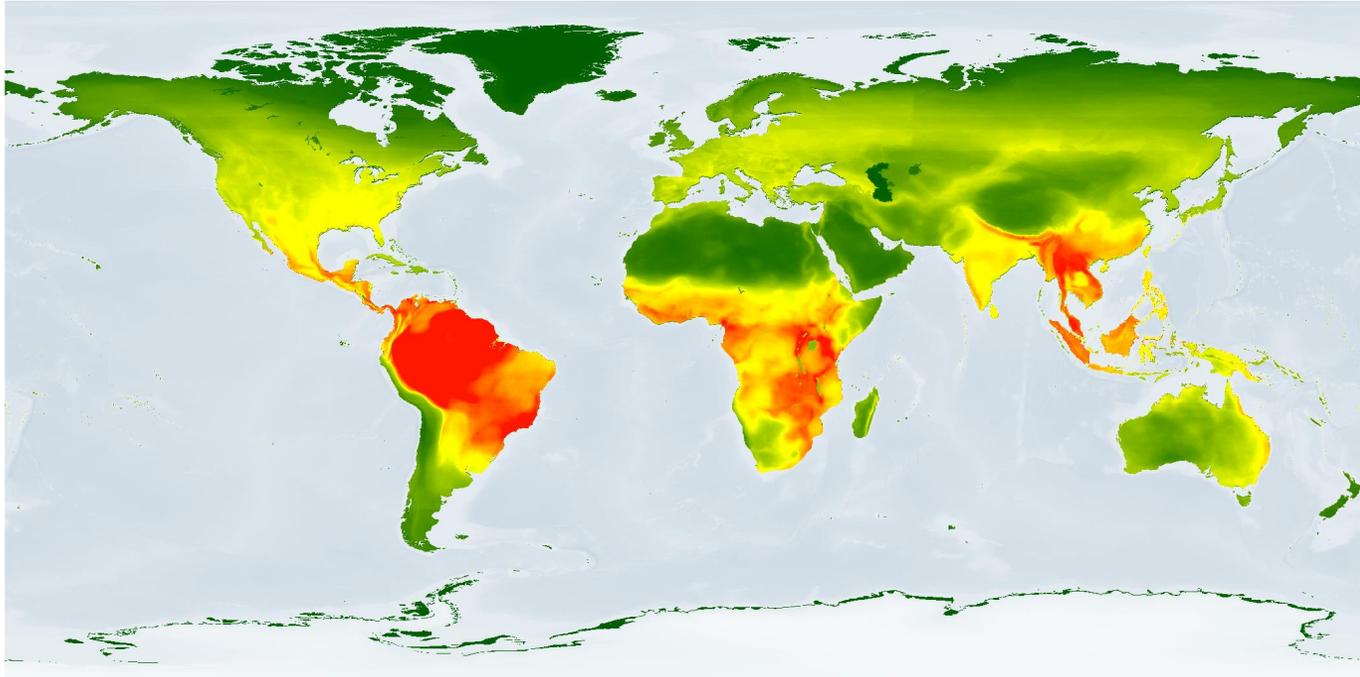
- *Map of BIOPAMA Regional Observatories*

► Importance of primary biodiversity data

- 8 areas where primary biodiversity data are used
- Example analyses and tools are taken from broader JRC work
- BID data will be used as it is published (either as occurrence data or Species Distribution Models) and RO are fully functional

▶ Valuation of biodiversity

- The assessment and quantification of the biodiversity value for specific geographic regions or places (e.g. protected areas)



	All Species			Threatened Species		
	x	✓	TOTAL	x	✓	TOTAL
American Samoa	21	4	25	4		4
Cook Islands	8	13	21	4		4
Fiji	83	2	85	27		27
French Polynesia	7	10	17	1		1
Guam	5	2	7	1		1
Kiribati	7	2	9	2		2
Marshall Islands	11	3	14	2		2
Micronesia (Federated States of)	36	1	37	14		14
Nauru	3		3	1		1
New Caledonia	13	11	24		1	1
Niue	9	2	11	2		2
Northern Mariana Islands	8	2	10	3		3
Palau	22	7	29	6		6
Papua New Guinea	479	6	485	83		83
Pitcairn	2	6	8			
Samoa	31	3	34	8		8
Solomon Islands	162	8	170	46	2	48
Timor-Leste	1		1	1		1
Tokelau	2		2			
Tonga	29	2	31	6		6
Tuvalu	4		4			
Vanuatu	57	8	65	16	1	17
Wallis and Futuna	13	1	14	3		3
Grand Total	1013	93	1106	230	4	234

- *Examples: Species inventories, richness maps and gap analyses*

PROJECT | IN PROGRESS

Establishing Metadata of Biodiversity Data Generated from Ramsar Sites in Tanzania

📅 30 Oct 2017 - 31 Mar 2019 € 18,500

[ABOUT](#)[DATASETS](#)

Panthera pardus subsp. pardus, Tanzania, United Republic of. Photo by Allan Hopkins licensed under CC BY-NC-ND 2.0

► **Monitoring of biodiversity**

- The monitoring and surveillance of species and habitats to detect changes to the populations, ranges or statuses.

- *Example:* SMART (Spatial Monitoring and Reporting Tool)

PROJECT | IN PROGRESS

Tracking the red lionfish invasion in Barbados

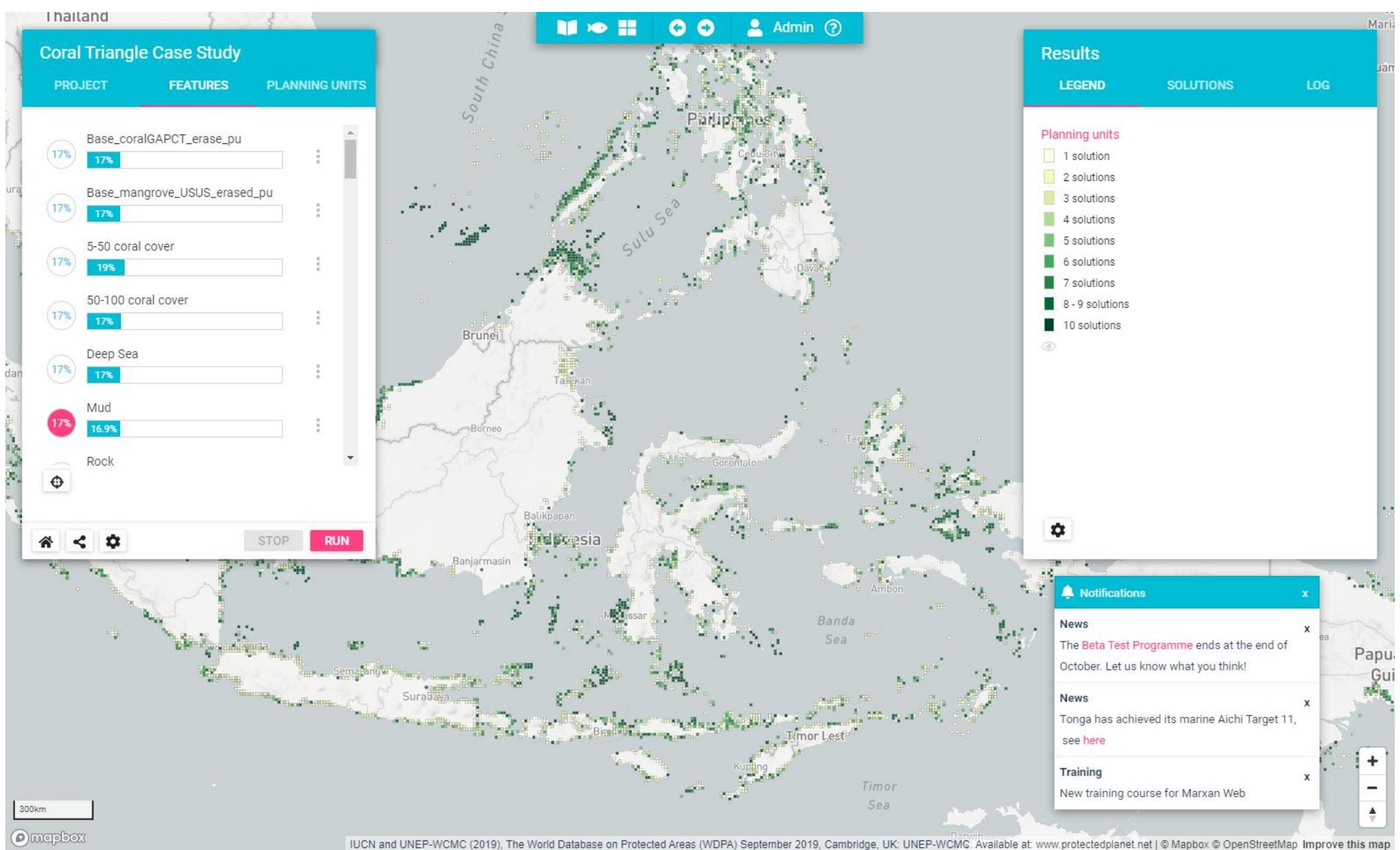
📅 1 May 2017 - 1 Dec 2018 € 5,000

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Lionfish (*Pterois volitans*), Curaçao. Photo by Laszlo Ilyes via Flickr, licensed under CC BY 2.0.

▶ **Systematic conservation planning**

- The design of protected areas networks and strategies to maximize the protection of biodiversity.



- *Example: Marxan Web*

PROJECT | IN PROGRESS

Capacity building and data mobilization for conservation and decision-making in the South Pacific

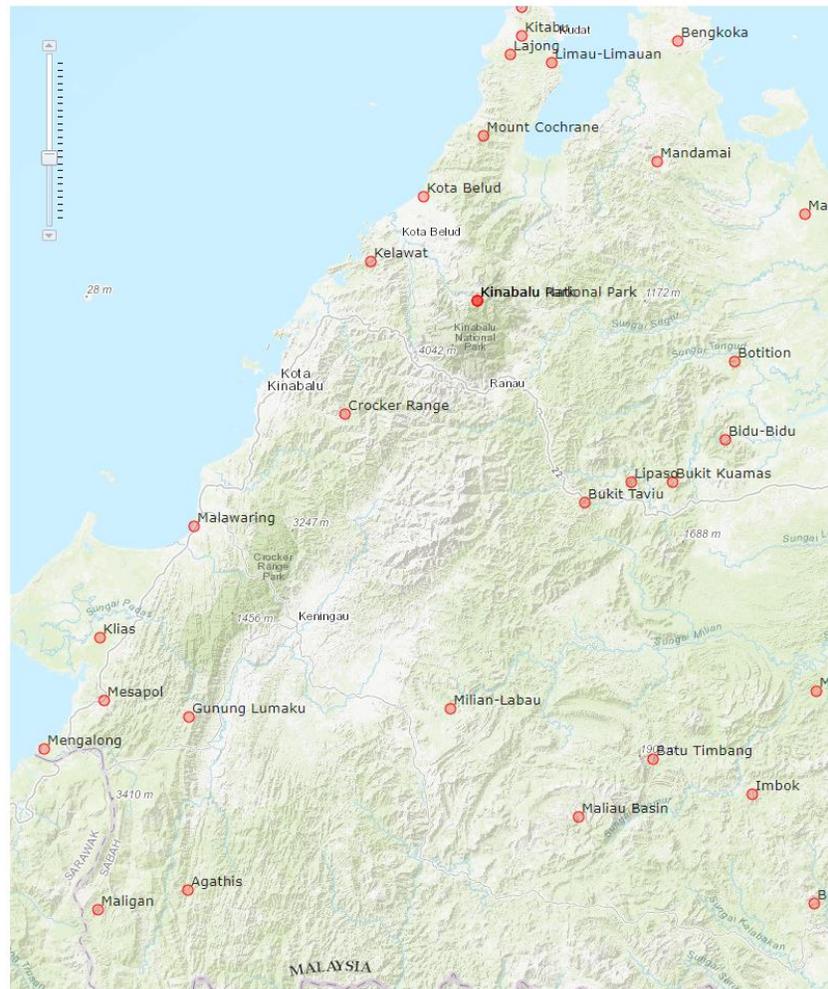
📅 1 Jul 2017 - 1 Oct 2018 € 61,435

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Spotted porcelain crab (*Neopetrolisthes maculatus*), Solomon Island by Mark Rosenstein via iNaturalist, licensed under CC BY-NC-SA 4.0.

▶ Ecosystem service valuation

- Many ecosystem services rely on biodiversity and therefore valuations depend on biodiversity data, e.g. tourism, fisheries management.



Ranked protected areas

Show the top protected areas for tourism potential

(click column to sort, click row to get species)

country	name	total	ln	sqr	avg	rich	status	score
MYS	Kawang Cidong	3290	1912	2221	11357.0530	3474	1735	
MYS	Kelawat	11230	2193	3395	12060.6953	4065	1862	
MYS	Keruak	3396	2257	2603	10975.7812	4420	1971	
MYS	Kinabalu	4852	1551	1751	12206.2757	1545	1447	
MYS	Kinabalu National Park	4852	1550	1753	12206.2757	1545	1447	
MYS	Kinabalu Park	4852	1551	1751	12206.2757	1545	1447	
MYS	Kitabu	13502	3041	4452	11864.8648	5575	2474	
MYS	Klang Gate	2000	1750	1801	10301.3305	2203	1703	
MYS	Klias	9463	2241	3240	11947.6718	3922	1920	
MYS	Kota Belud	12410	2811	4127	11848.7705	4712	2337	
MYS	Krau	1006	1574	1039	89750.2784	1737	1577	
MYS	Kretam	4282	2596	3171	11086.8364	5097	2223	
MYS	Kuala Selangor	2046	19	23	12610.52	33	21	
MYS	Kubah	11852	3381	4361	11547.8912	6006	2950	
MYS	Kulamba	1626	32	19	12495.16	13	24	
MYS	Labuk Road	13367	2802	4274	11934.7602	4514	2275	
MYS	Lajong	12163	2827	4104	11828.8648	5512	2280	

Species

Mammalia CR EN VU NT LC DD Show images

Common name	Taxon	Status	Flickr image count	
Bornean Orangutan	Pongo pygmaeus	EN	2422	
Asian Small clawed Otter	Aonyx cinerea	VU	1501	
Long nosed Monkey	Nasalis larvatus	EN	896	
Malayan Sun Bear	Helarctos malayanus	VU	519	

64 species for 'Kinabalu'

- *Example: Tourism potential based on species charisma*

Willemen L, Cottam AJ, Drakou EG, Burgess ND (2015) Using Social Media to Measure the Contribution of Red List Species to the Nature-Based Tourism Potential of African Protected Areas. PLoS ONE 10(6): e0129785.

PROJECT | IN PROGRESS

Extension and management of the reference collections of bee pollinators in West Africa

📅 1 Oct 2017 - 31 Mar 2019 € 20,000

[ABOUT](#) [DATASETS](#)



Apis mellifera scutellata, Burkina Faso. Photo by ONG OeBenin licensed under CC BY-NC 4.0

▶ Protected Area Management

- Local-scale biodiversity data to support the protection and preservation of species and habitats through conservation management.

- *Example:* Integrated Management Effectiveness Tool

PROJECT | IN PROGRESS

Improving natural resources management in Belize by mobilizing biodiversity data

📅 1 Jun 2017 - 1 Nov 2018 € 54,101

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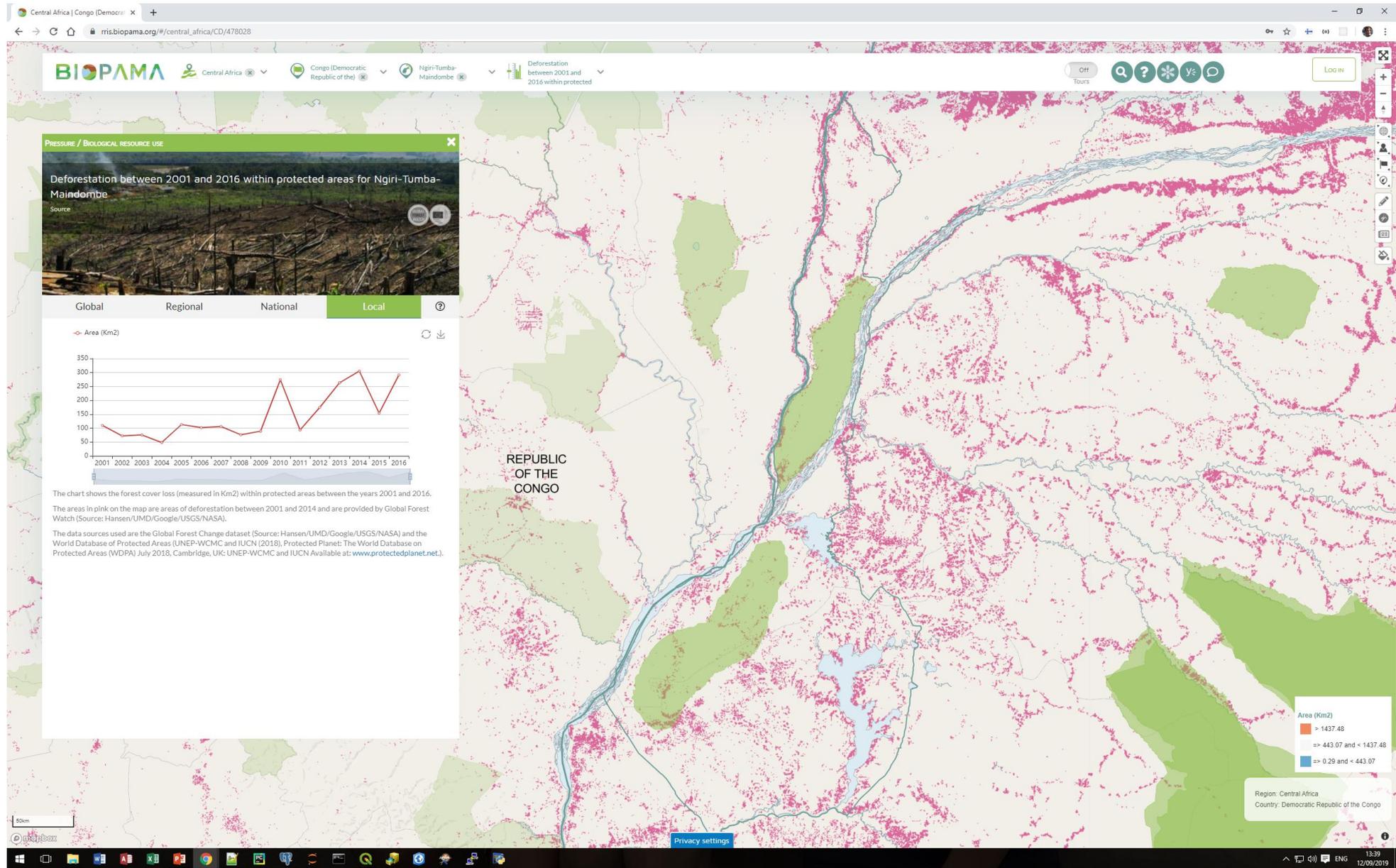
Vermillion flycatcher (*Pyrocephalus rubinus*) in pine-oak savannah, Belize. Photo by Feroze Omardeen via Flickr, licensed under CC BY 2.0.

▶ **Environmental Impact Assessment**

- Multi-scale biodiversity data to support the assessment of the impact on biodiversity through environmental policies or local planning decisions.

► Policy Support for MEAs, SDGs

- Many of the MEAs have statutory reporting obligations that require a range of biodiversity data, including CBD (NBSAPs).



- *Example: BIOPAMA Reference Information System*

▶ Research

- Applied scientific research
- *Examples: Knowledge gaps in flowering plants in Africa*

Stropp, J. , Ladle, R. J., M. Malhado, A. C., Hortal, J. , Gaffuri, J. , H. Temperley, W. , Olav Skøien, J. and Mayaux, P. (2016), Mapping ignorance: 300 years of collecting flowering plants in Africa. *Global Ecol. Biogeogr.*, 25: 1085-1096

Réserve partielle de faune dite des Eléphants du Gourma is in Mali, has been designated as **Réserve Partielle de Faune** at National level in 1959. It covers **28,588 km²** and it is managed by Etat, Wild Fondation

Happening Now
 Diagnostic
 Climate
 Ecosystems
 Ecosystem Services
 Land Cover
Species
 Pressures

Species numbers in protected area
 The following species numbers are computed from the species ranges recorded in the IUCN Red List of Threatened Species. Note that overlays of species and protected areas can result in a high level of errors as discussed in the factsheet.

Species list for protected area
 The following species list is computed from the species ranges recorded in the IUCN Red List of Threatened Species. Note that overlays of species and protected areas can result in a high level of errors as discussed in the factsheet.

Species occurrences reported to the GBIF
 Species occurrences map reported to the Global Biodiversity Information Facility (GBIF).

GBIF species occurrence density
 Low High

Select a phylum from the animal or plant kingdom and filter by year
 Chordates (Chordata)
 Select a Plant Phylum

Species are displayed as spatial layers made available from the Global Biodiversity Information Facility (GBIF) that derive from many sources, including everything from museum specimens collected in the 18th and 19th century to geotagged smartphone photos shared by amateur naturalists in recent days and weeks. This dataset may help you identifying information gaps and factors limiting the dissemination of biodiversity information that are recognized as priorities both at the political and scientific levels of the the Convention on Biological Diversity (CBD).
 GBIF.org (2019). GBIF Home Page. Available from <https://www.gbif.org>

Leaflet | May 2019 version of the World Database on Protected Areas (WDPA)

• Example: Research into survey effort

► Current links

- Staff in BIOPAMA Regional Observatories have benefitted from BID Capacity development:
 - Data publishing and hosting an Integrated Publishing Toolkit
 - Data Use for Decision Making
- SPREP are a regional observatory and have a number of successful BID projects

► Future links

- Regional Observatories to develop capacity in offering value-added services, e.g. Species Distribution Modelling
- BIOPAMA tools to use GBIF/BID data directly, e.g. Marxan Web

BIOPAMA

From Knowledge to Action for a Protected Planet



www.biopama.org

The Biodiversity and Protected Areas Management Programme (BIOPAMA) is an initiative of the ACP Group of States funded by the European Union's 11th European Development Fund.