

Is research useful for the management of protected areas in central Africa?

Conference « Study and conservation of wildlife in tropical and temperate ecosystems »
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Simon LHOEST
Morgane GAUDIN
Pierre PROCES
Cédric VERMEULEN

with a special thank to:
Samuel QUEVAUVILLERS
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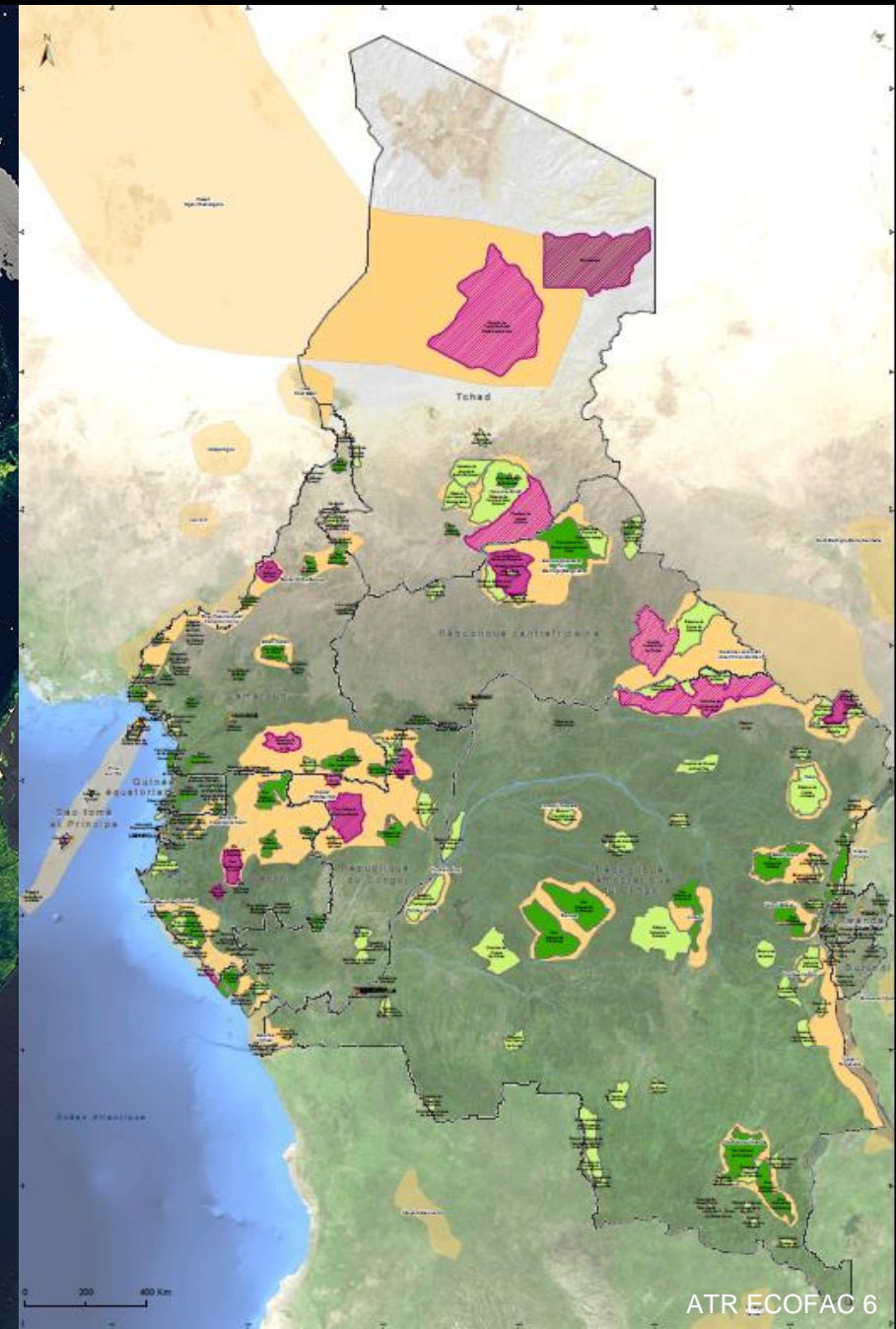
10 countries

Protected areas

~ 960 000 km²

~ 31 x  's area

~ 2 x  's protected areas



Research is supposed to help in decision-making (*'science-policy interface'*)



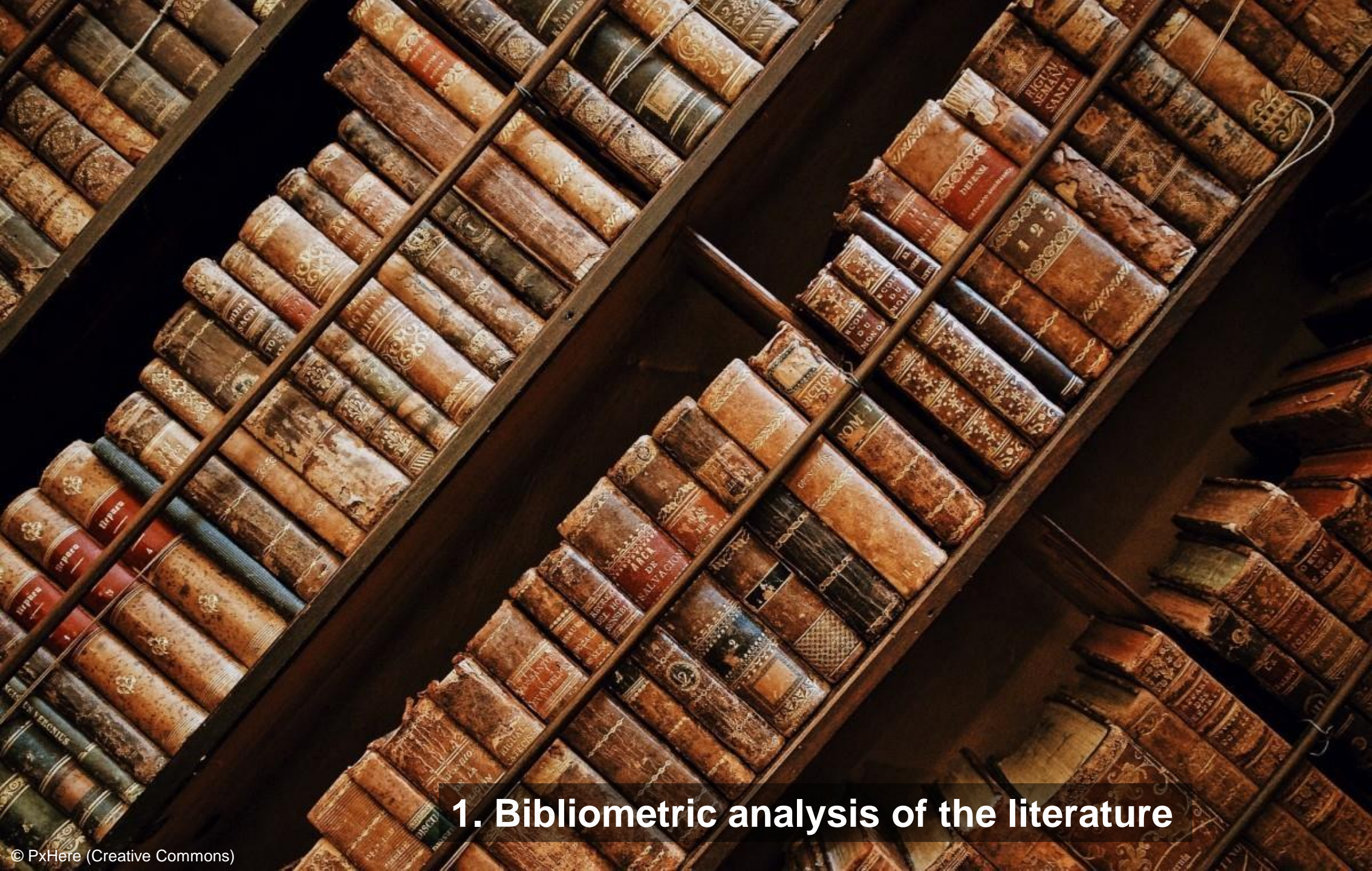
However:

- The sharing of results is insufficient, as well as the dialogue among scientists, field managers and policy makers
- Research in protected areas is rarely connected with the priorities of managers

1. Characterize the research effort in the protected areas of the 10 central African countries
→ **Bibliometric analysis of the literature**
2. Capitalize on managers' experiences with their practical use of research
→ **Interviews**



3. Make **recommendations** that aim to:
 - i. Define priority research topics for protected areas
 - ii. Improve the conditions for funding, producing and disseminating research to enable its efficient use
- **'Finalized research'**: meeting an initial management objective, within a timeframe compatible with decision-making

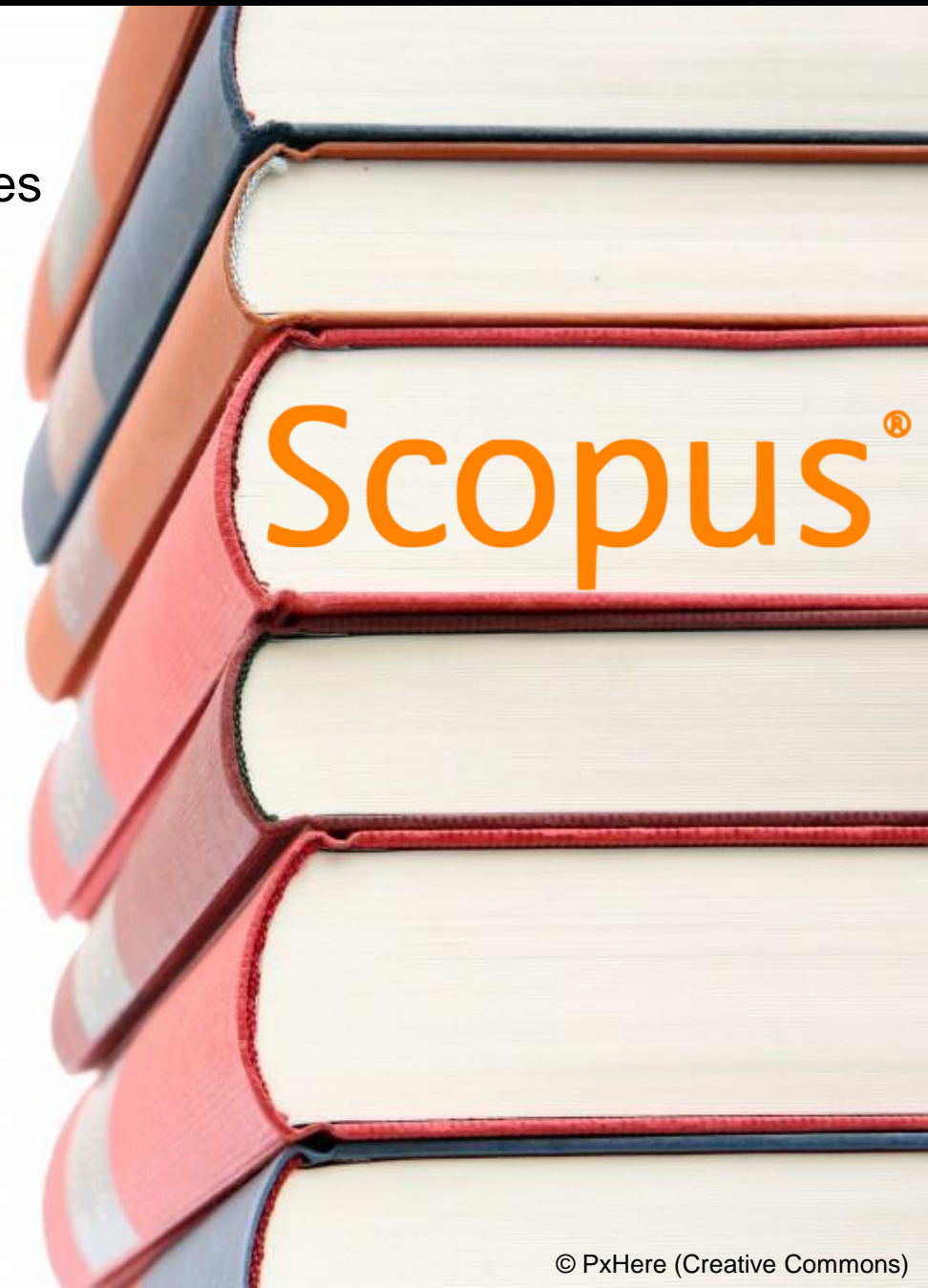


1. Bibliometric analysis of the literature

- Inventory of scientific articles published in international journals (Scopus)
- All protected areas of the 10 central African countries
- Period 2011-2020 (Aichi Targets)

For each publication, identification of:

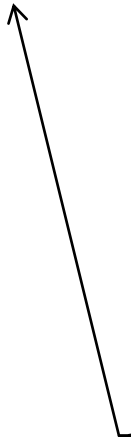
- **Country(ies) studied**
- **Protected area(s) studied**
- **Research subject(s)**
- **Metadata:**
 - Authors
 - Title
 - Year of publication
 - Journal
 - Download link
 - Author affiliations
 - Abstract
 - Keywords
 - Funding sources
 - Language of the document
 - Type of article
 - Accessibility (open access or not)



- Access link to the database: [Tinyurl.com/protectedareascentralafrica](https://tinyurl.com/protectedareascentralafrica)
- 1140 scientific articles analyzed → List of 779 relevant articles selected

Sub-selections by:

- Authors
- Countries
- Protected areas
- Topics



A database produced by Gembloux Agro-Bio Tech (University of Liège), under the supervision of the Regional Technical Assistance ECOFAC 6

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Search by...

Authors:

Country:

- Burundi
- Cameroon
- Central African Republic
- Chad
- Democratic Republic of Congo
- Equatorial Guinea
- Gabon
- Republic of Congo
- Rwanda
- São Tomé and Príncipe
- Central Africa

Protected area:

Main Topic:

- Biodiversity
- Environment
- Humans
- Health

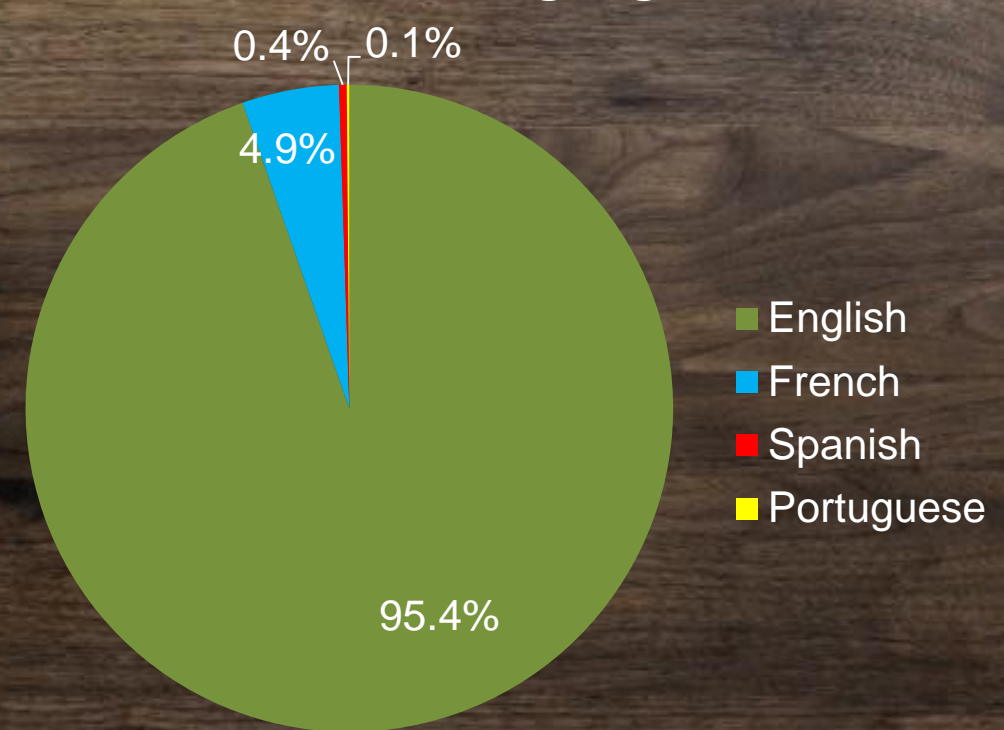
Sub Topic:

List of 779 scientific articles available

Article Title	Year
A case study of improved cook stoves in primate conservation from Democratic Republic of Congo Kahlenberg S.M., Bettinger T., Masumbuko H.K., Basyanirya G.K., Guy S.M., Katsongo J.K., Kocanjner N., Warfield L., Mbeke J.K.	2020
A cryptic new species of Chlidonoptera karsch, 1892 from the south west protected zone of the Central African Republic (Insecta, mantodea, hymenopodidae) Moulin N.	2020
A microdynamics approach to geographies of violence: Mapping the kill chain in militarized conservation areas Verweijen J.	2020
A partnership to build scientific capacity of Rwanda's future conservationists: The Memoirs Program Eckardt W., Tuyisingize D., van der Hoek Y., Tolbert S., Stoinski T.S., Ndagijimana F., Kaplin B.A., Mudakikwa A., Lukas K.	2020
A survey of snakes in the patte d'oe forest reserve (Brazzaville, republic of congo): An urban snake community in central africa Zassi-Boulou A.G., Tchimbakala J.G., Mavoungou L.B., Jackson K.	2020
Abundance, density, and social structure of African forest elephants (Loxodonta cyclotis) in a human-modified landscape in southwestern Gabon Brand C.M., Johnson M.B., Parker L.D., Maldonado J.E., Korte L., Vanthomme H., Alonso A., Ruiz-Lopez M.J., Wells C.P., Ting N.	2020
An annotated checklist of the fish fauna of the river systems draining the Kahuzi-Biega National Park (Upper Congo: Eastern DR Congo) Kisekelwa T., Snoeks J., Vreven E.	2020
Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity Grantham H.S., Duncan A., Evans T.D., Jones K.R., Beyer H.L., Schuster R., Walston J., Ray J.C., Robinson J.G., Callow M., Clements T., Costa H.M., DeGemmis A., Elsen P.R., Ervin J., Franco P., Goldman E., Goetz S., Hansen A., Hofsvang E., Jantz P., Jupiter S., Kang A., Langhammer P., Laurance W.F., Lieberman S., Linkie M., Malhi Y., Maxwell S., Mendez M., Mittermeier R., Murray N.J., Possingham H., Radachowsky J., Saatchi S., Samper C., Silverman J., Shapiro A., Strassburg B., Stevens T., Stokes E., Taylor R., Tear T., Tizard R., Venter O., Visconti P., Wang S., Watson J.E.M.	2020
Apex predators decline after an influx of pastoralists in former Central African Republic hunting zones Aebischer T., Ibrahim T., Hickisch R., Furrer R.D., Leuenberger C., Wegmann D.	2020
Assessing attitudes towards gorilla conservation via employee interviews Robbins M.M.	2020
Assessment of in situ nest decay rate for chimpanzees (Pan troglodytes ellioti Matschie, 1914) in Mbam-Djerem National Park, Cameroon: implications for long-term monitoring Kamgang S.A., Carme T.C., Bobo K.S., Abwe E.E., Gonder M.K., Sinsin B.	2020
Behavioural diversity of bonobo prey preference as a potential cultural trait Samuni L., Wegdell F., Surbeck M.	2020
Birds of Burhinyi mountain forest, North of Itombwe Nature Reserve, Democratic Republic of Congo Murhabale B.C., Bwanamudogo I., Magadju A., Tolbert S., Bapeamoni F., Kahindo C., Marks B.D., Agenong'a U.	2020
Boots on the ground: The role of passive acoustic monitoring in evaluating anti-poaching patrols Astaras C., Linder J.M., Wroblewski J., ...	2020
Bringing the tracker-guards back to the forest Lombard L., Tubiana J.	2020
Bushmeat hunting around the world: A review of the literature Batumike R., Imani G., Urciuolo R., ...	2020
Chimpanzee ranging responses to human presence in a forest landscape Green S.J., Boruff B.J., Niyiwa S., ...	2020
Climatic and Resource Determinants of Forest Fragmentation in the Congo Basin Beirne C., Meier A.C., Brumagin G., Jasperse-Sjolander L., Lewis M., Masseloux J., Myers K., Fay M., Okouyi J., White L.J.T., Poulsen J.R.	2020

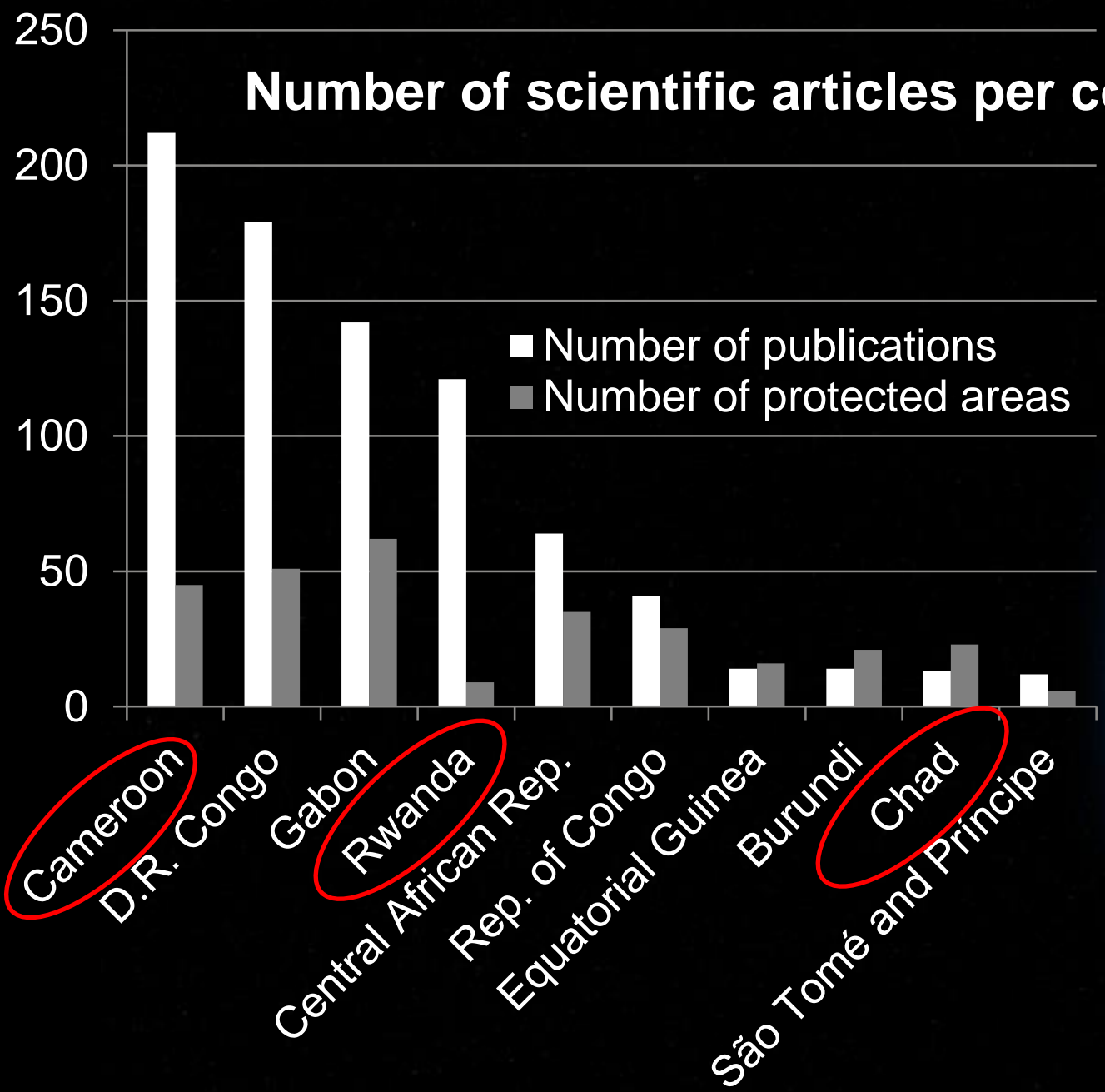
Non exhaustive database: contact me to add relevant papers: slhoest@asu.edu

Document languages



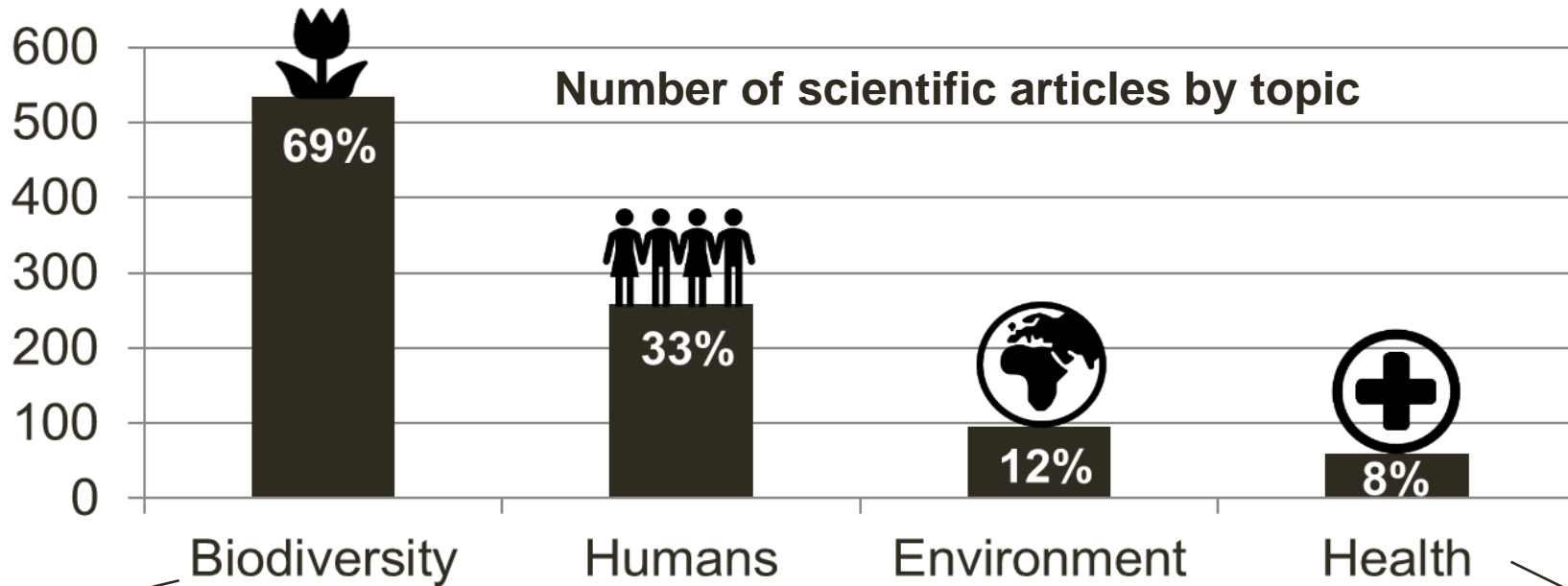
Only **37%** of articles are published in open access

For only **29%** of the publications, the first author has an affiliation in central Africa



- Most studied protected areas:**
1. Volcanoes NP (Rwanda)
 2. Korup NP (Cameroon)
 3. Virunga NP (DRC)
 4. Dzanga-Sangha (CAR)
 5. Dja Faunal Reserve (Cameroon)
 6. Lopé NP (Gabon)
 7. ...

Distribution of publications by topics



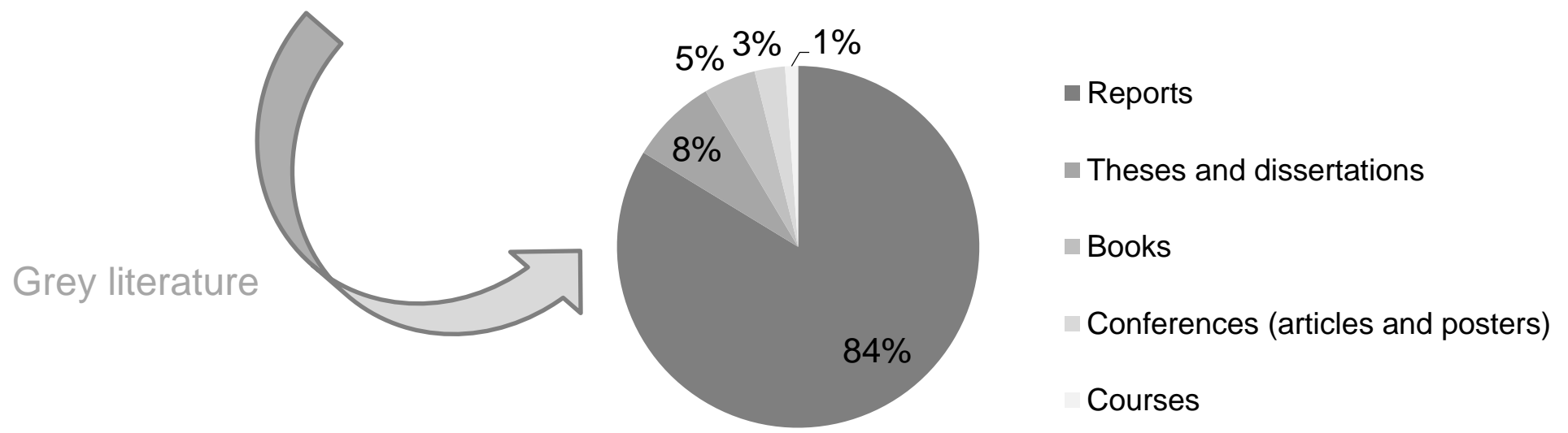
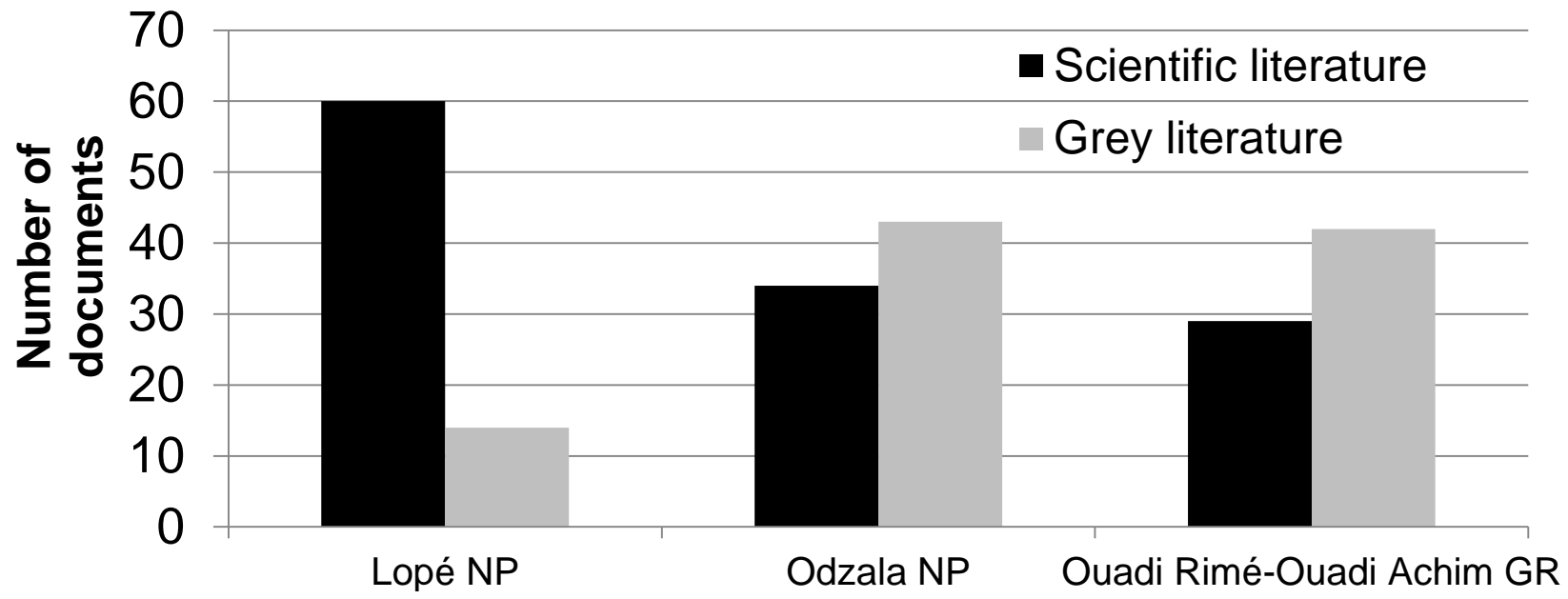
Animals
Plants
Inventories
Biology / Ecology
Genetics
Taxonomy
...

Periphery management
Perceptions / Behaviors
Conservation activities
Income-generating activities
Governance / Policy
Hunting / Poaching
Anthropology
Agriculture
NTFPs
Conflicts
...

Land use / Land cover
Geology / Pedology
Climate
Carbon
...

Animal health
Human health

→ Research topics VS priority management challenges?
→ Fundamental VS applied / 'finalized' research?



➔ More applied topics (human, environment, ...) in the grey literature



- Important differences among the 10 countries and among protected areas
- Only 1/3 of publications are accessible to managers
 - ➔ Ensuring open access
- Only 1/3 of authors are based in central Africa & few publications per protected area, per country and per year
 - ➔ Give priority to the financing of national theses, with North-South collaborations
- Large majority of publications in English, but managers largely French-speaking
 - ➔ For each scientific publication, associate an abstract in French

2. Managers' experiences with the operation and use of research



3 interview types with protected area managers:

1. Online questionnaire
2. Focus group
3. Individual interviews

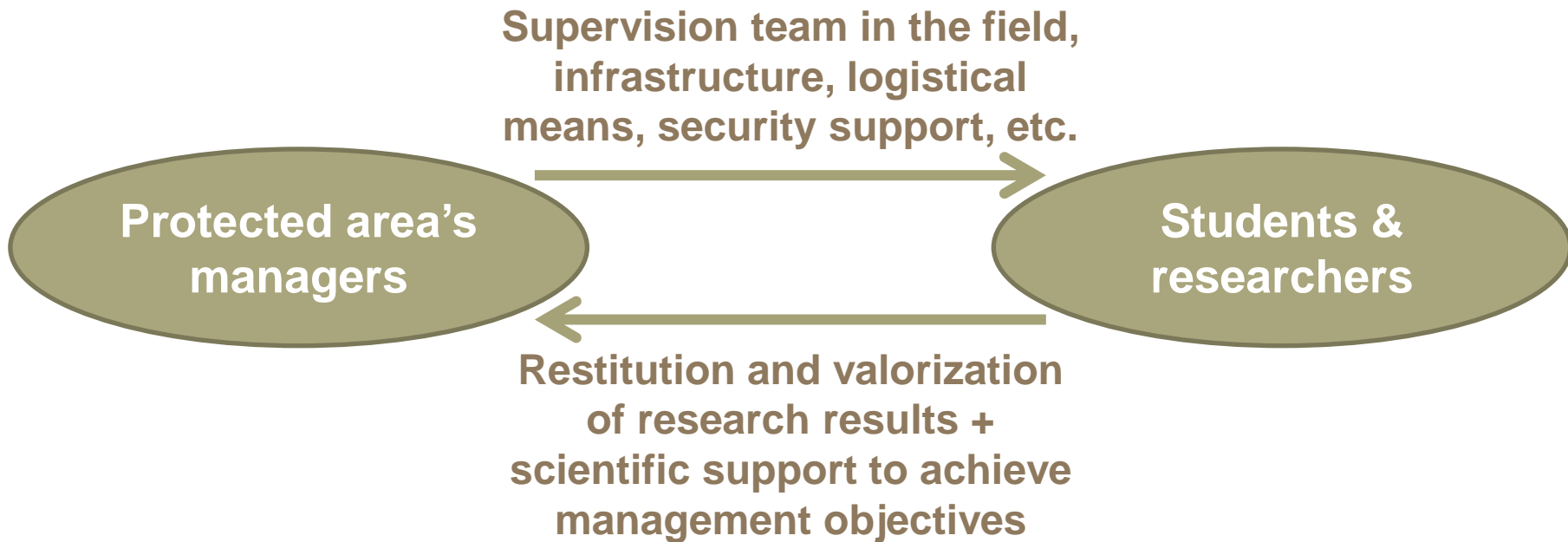
Questions related to:

1. Research actors
2. Research questions
3. Use of research results in management
4. Access to research

→ 73 respondents, representing 42 protected areas

More than 70% of protected areas:

- Welcome (inter)national students and researchers
- Have signed formal collaboration agreements with privileged partners for research



Only 20% of protected areas have defined their priority research questions

Highest priority research questions are related to:

1. **Animal biodiversity**
2. **Human aspects**
3. **Fight against illegal activities**
4. **Vegetal biodiversity**



61% report that there are "dormant data" that are not used by anyone

70% are involved in the design of research protocols and

49% in writing scientific publications...

BUT 82% would like to be better involved
in the design of research protocols and scientific publications

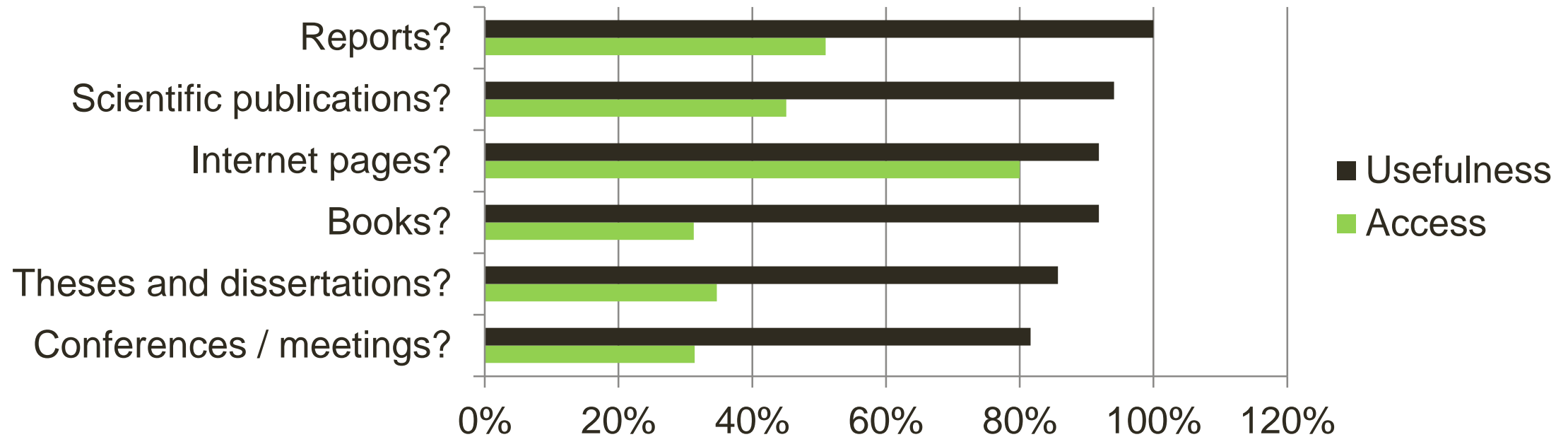
Biomonitoring results are directly used by **90%** of protected area managers...

... while **only 45%** consider that **scientific research is produced quickly enough** to respond to management issues.

The main use of scientific research by managers consists in using tools developed by researchers, such as applications, GIS, databases...



Are these types of documents useful and accessible for your work:



{
73%
 of managers generally have access to the
{
results
 of research conducted in their PA

}
 raw data
}

{
61%

Odzala-Kokoua National Park (Congo) :

Sampling of urine, faeces, carcasses, parasites to monitor infections and inter-species transmissions (great apes and bats)



Lopé National Park (Gabon) :

Census of zoonotic diseases at the country level, serological samples to list the bacteria and viruses that the consumption of bushmeat can potentially transmit to humans

Scimitar-horned oryx in the Ouadi Rimé-Ouadi Achim Game Reserve (Chad) :

- Species classified as "extinct in the wild" since 2000 by the IUCN
- Reintroduction of 144 animals in 2016 → today 382 individuals
- Logistics, breeding, monitoring and scientific research (progress assessment, threat detection and management information)
- Monitoring: demography (population size, survival, reproductive success), space and habitat use
- Responses to threats: epidemics, bush fires, poaching
- Adaptation of release protocols and veterinary prophylaxis



Little used in Central Africa, but can finance conservation + socio-economic benefits with income-generating activities for local communities + development of basic / applied research projects

Lopé National Park (Gabon) :

Vision tourism for emblematic species, thanks to the GPS tracking of animals

- ➔ Mandrill excursion: 250€
- ➔ Pangolin excursion: 280€


Obô Natural Parks (São Tomé and Príncipe) and other countries (South Africa, Kenya, Uganda, Namibia):

EARTHWATCH model of science tourism

➔ Amateur "research tourists" pay thousands of dollars to participate in scientific field studies without having to manage the paperwork

Showing 6 of 6 matches

Sort by Alphabetical: A-Z



WILDLIFE & ECOSYSTEMS

Moderate

Conserving Endangered Rhinos in South Africa

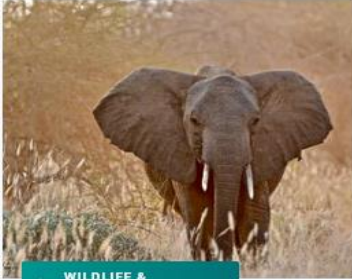
Rhino populations are in crisis due to the high value of rhino horn combined with widespread poaching.

Africa : Northwest Province, South Africa, Africa
Lead Scientist: [Dawn Scott, Ph.D.](#)
Duration: 12 days (avg. \$300 a day)

Starting at **\$3,595**

[Expedition Details](#)

[View Dates & Join](#)



WILDLIFE & ECOSYSTEMS

Easy

Elephants and Sustainable Agriculture in Kenya


Help local farmers to conserve elephants and their habitat in southeast Kenya by implementing sustainable agriculture practices

Africa : Kasigau Corridor, Kenya (between Tsavo East and West National Parks), Kenya, Africa
Lead Scientist: [Bruce A. Schulte, Ph.D.](#)
Duration: 12+ days (avg. \$250 a day)

Starting at **\$2,995**

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WILDLIFE & ECOSYSTEMS

Very Active

Investigating Threats to Chimps in Uganda

Explore interactions between people and chimpanzees and other primates in the rainforest of Uganda to improve human-primate rel

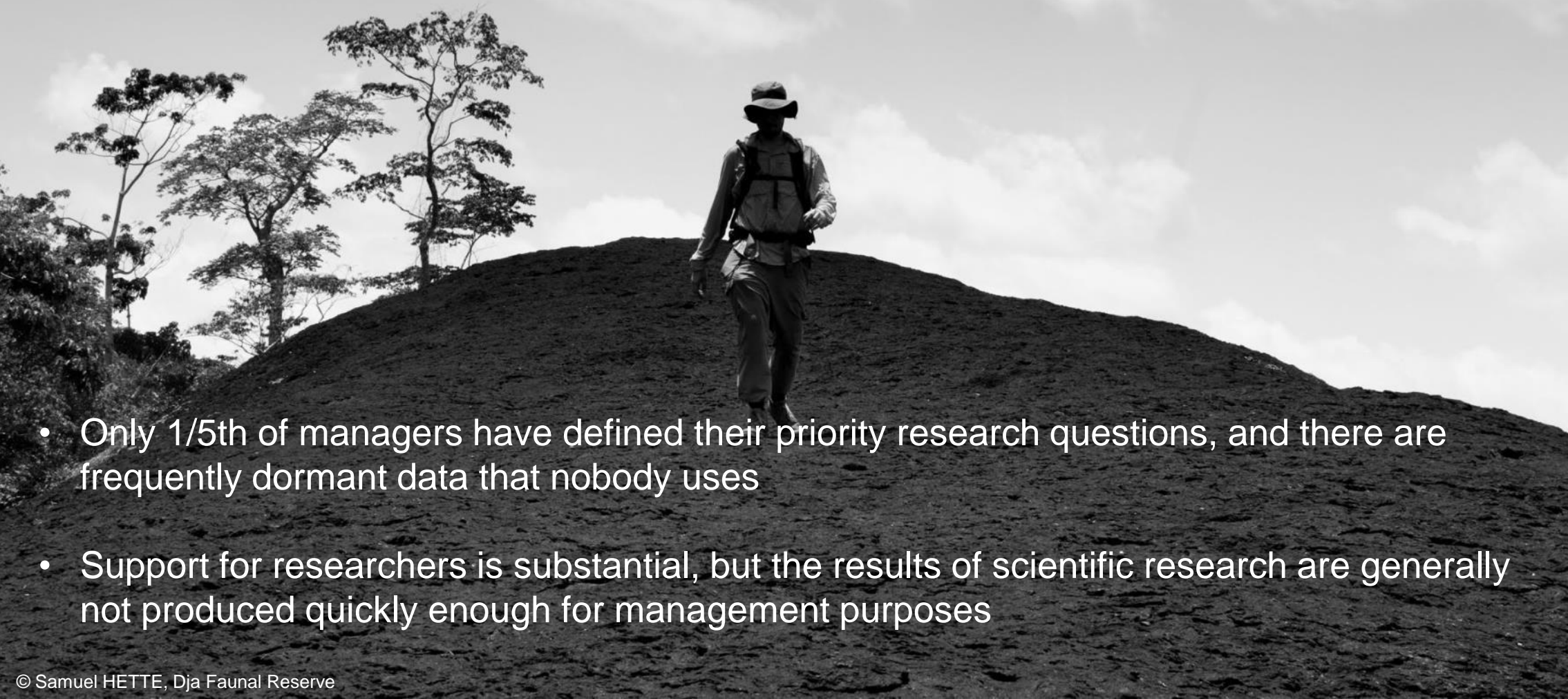
Africa : Budongo Forest Reserve, Uganda
Lead Scientist: [Fred Babweteera, Ph.D.](#)
Duration: 12 days (avg. \$254 a day)

Starting at **\$3,050**

[Expedition Details](#)

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- $\frac{3}{4}$ of managers have privileged research partners: the restitution of results is essential
- The concrete use of research results by protected area managers is not optimal



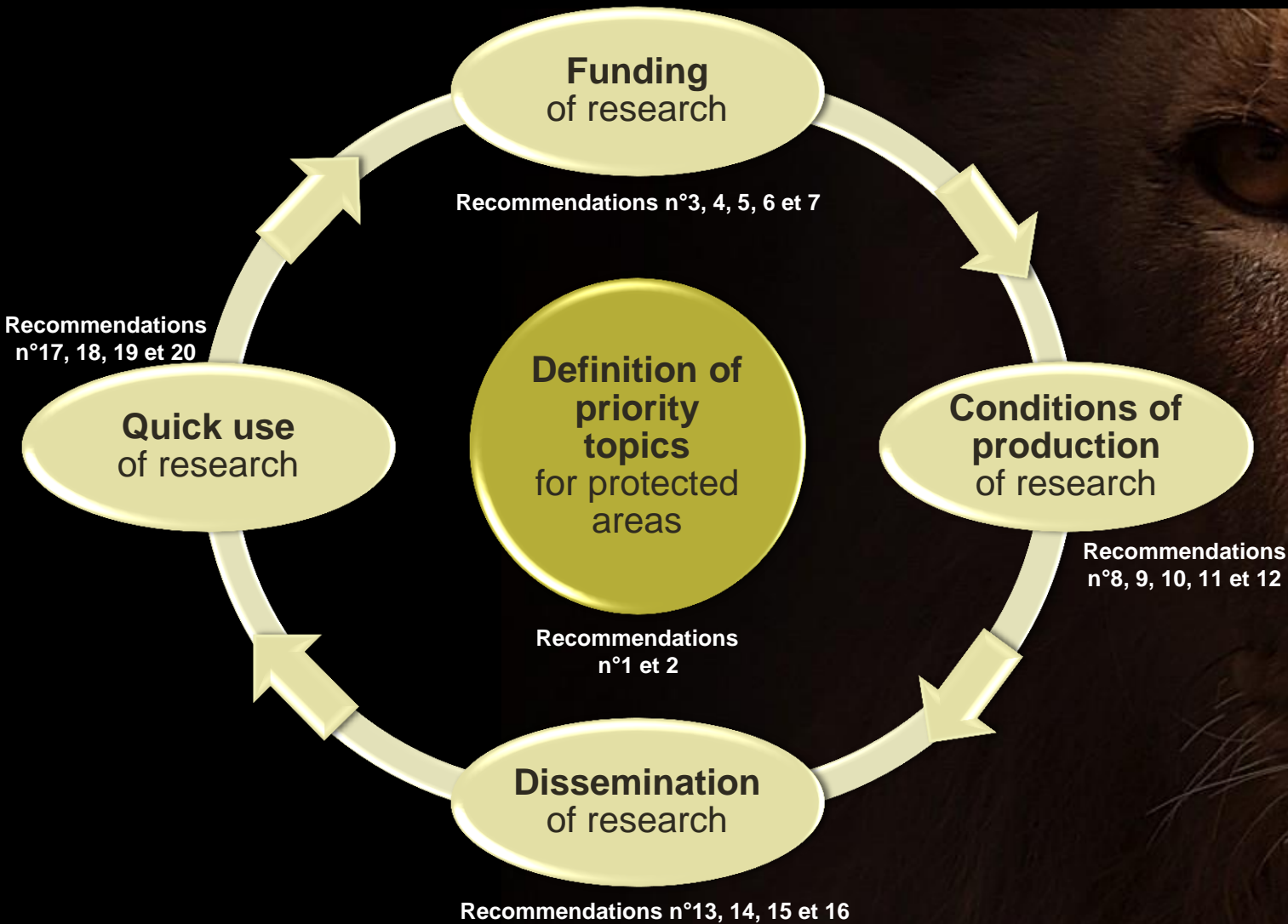
- Only 1/5th of managers have defined their priority research questions, and there are frequently dormant data that nobody uses
- Support for researchers is substantial, but the results of scientific research are generally not produced quickly enough for management purposes

How to translate research results into operational recommendations?

How can managers and researchers be better mobilized to focus research efforts on priority management issues?

How to reconcile the different time frames between scientists and managers?

... to protected area managers, central African States, research and training institutions, donors, and civil society



➔ See our complete report: <https://orbi.uliege.be/handle/2268/261099>

Research is directly useful for conservation,
but only when it is strategically aligned with protected area management issues.

Thank you for your attention!

simlho@hotmail.com / slhoest@asu.edu

