Linking ABS Research Permit Systems with Monitoring under the Nagoya Protocol

Paul Oldham, ABS Initiative &
United Nations University, Institute for Advanced Study of Sustainability (UNU-IAS).

The Nagoya Protocol

- Under the Nagoya Protocol Parties must establish national legislation on ABS.
- Parties must also facilitate access to genetic resources including a permit (Art. 6) linked to ABS agreements;
- ABS agreements take the form of contracts setting out Mutually Agreed Terms on benefit-sharing;
- Based on the above, regulators in other Parties will assist with addressing user compliance;
- Monitoring (Art. 17) is key to ensuring compliance and building trust;

The capacity to know

- One of the key challenges on compliance and monitoring is the capacity of governments to know what is happening with GR and TK;
- There is an important link between Article 6 and Art 17 on monitoring. And, as I will suggest, to benefit sharing;
- Permit systems provide the key starting point for implementing ABS and monitoring compliance;

Online permitting

Electronic permit systems needs to do quite a number of things:

1. Simplification for Permit Authorities and Applicants
2. Legal certainty (obligations & requirements)
3. Promoting trust
4. Enabling benefit sharing (monetary & non-monetary)
5. Facilitating monitoring on the ground and when resources move to collections etc
6. Facilitating reporting (NP but also national STI type indicators)

Challenges

- Recognising and adapting to what already exists where possible & national needs
- Capacity (technical) and sustainability (maintenance)
- A permit system has a time horizon of decades = a need for robust & inbuilt redundancy and investments in human capacity

The Proposal

1. A Single Shared System (but multiple authorities)
2. Identifiers and labels (monitoring)
3. Monitoring (local and national)
4. National Reporting
5. Simple and Easy to Use

A Single System: The Concept

A single electronic permit system that makes it easy to apply for permits and for government authorities to review and approve applications, monitor compliance and report on the access, benefit-sharing, compliance and reporting provisions of the Nagoya Protocol.

The Single System is based on a simple web form that triggers actions including notifications.

A Single System uses a Simple Web Form

The system uses a web form with choices, such as the environment where research will take place. Choices trigger actions (pathways) and notifications to authorities.

Electronic Permit System: Core Components

Authorities

Online Front Page

Applicants

Core System

Legal

Backups

Monitoring

Physical Archive

Reporting

Mobile access

Model online ABS permit and monitoring system

poldham.github.io/abs_permits/index.html

About | Executive Summary | Background | The Model | Core Principles | Unique Identifiers | Draft Workplan | Schematics

About

This is the project site for a model Online Research Permit and Monitoring System to support national implementation of the Nagoya Protocol.

The idea behind the model is to assist Parties to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Shar Benefits Arising from their Utilization of the United Nations Convention on Biological Diversity with Implementing the Nagoya Proto

The model focuses on the creation of an online permit and monitoring system to make it easier for governments to administer researc permit applications involving genetic resources and traditional knowledge and to monitor compliance under the Nagoya Protocol as w making it easier to prepare national reports.

Download in Word and PDF

You can download Word versions of the sections in a .zip file here. For pdf versions go here.

You will also need to view the schematics which demonstrate the basic functions of the system. You can view them online from the Schematics menu or download them in powerpoint, keynote or pdf. The schematics are meant to be viewed as a slide show in presentation mode.

The draft workplan can be downloaded as headings to assist with project planning here.

Who Developed This?

The original model was written by Dr. Paul Oldham as part of work with Hartmut Meyer and Olivier Rukundo on implementation of the Nagoya Protocol in the Bahamas. The updated version is a joint work in progress and much better for it.

Financial Support

The model was developed with the support of The Bahamas Environment, Science & Technology Commission (BEST) of the Government of the Bahamas under the UNEP/GEF project "Strengthening Access and Benefit Sharing (ABS) in the Bahamas" as set out in *Oldham, P (2015) Concepts for an Electronic Monitoring Tool. UNEP/GEF project "Strengthening Access and Benefit Sharing (ABS) in the Bahamas"*. We were able to do further work with the additional support of The ABS Capacity Development Initiative through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). We express our sincere thanks to the BEST Commission, UNEP/GEF and the ABS Capacity Development Initiative and GIZ for their support. We would point out that the views expressed are solely those of the authors and should not be interpreted as reflecting the views of the Government of the Bahamas, the ABS Initiative or GIZ. Spelling mistakes, misnumberings and disasters with diagrams are definitely somebody else's fault.

Suggested Citation

Oldham, P; Rukundo, O; Meyer, H (2016) An Online Research Permit and Monitoring System to Support Implementation of the Nagoya Protocol. Concept Paper. [DOI to follow]

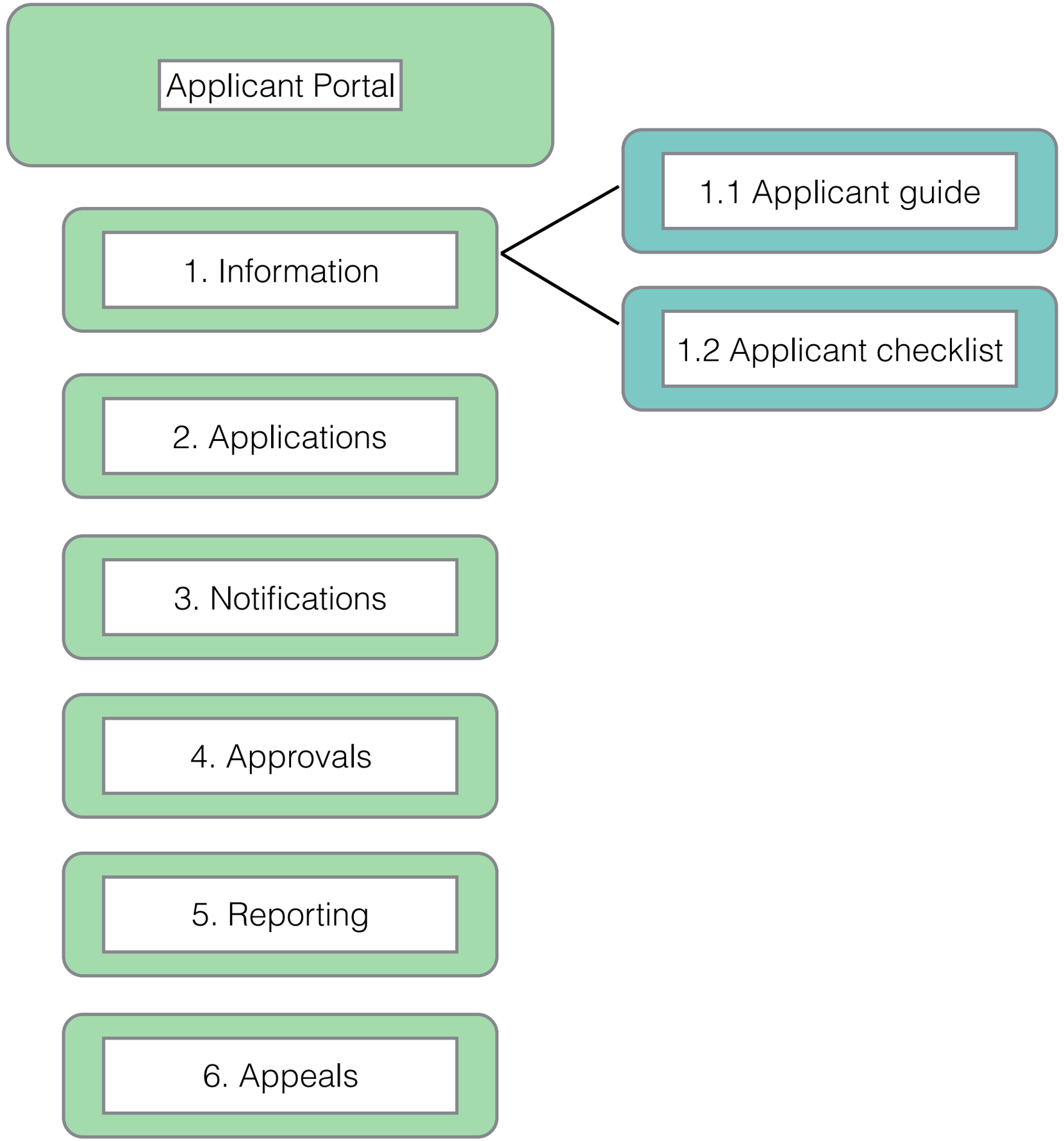
About this Site

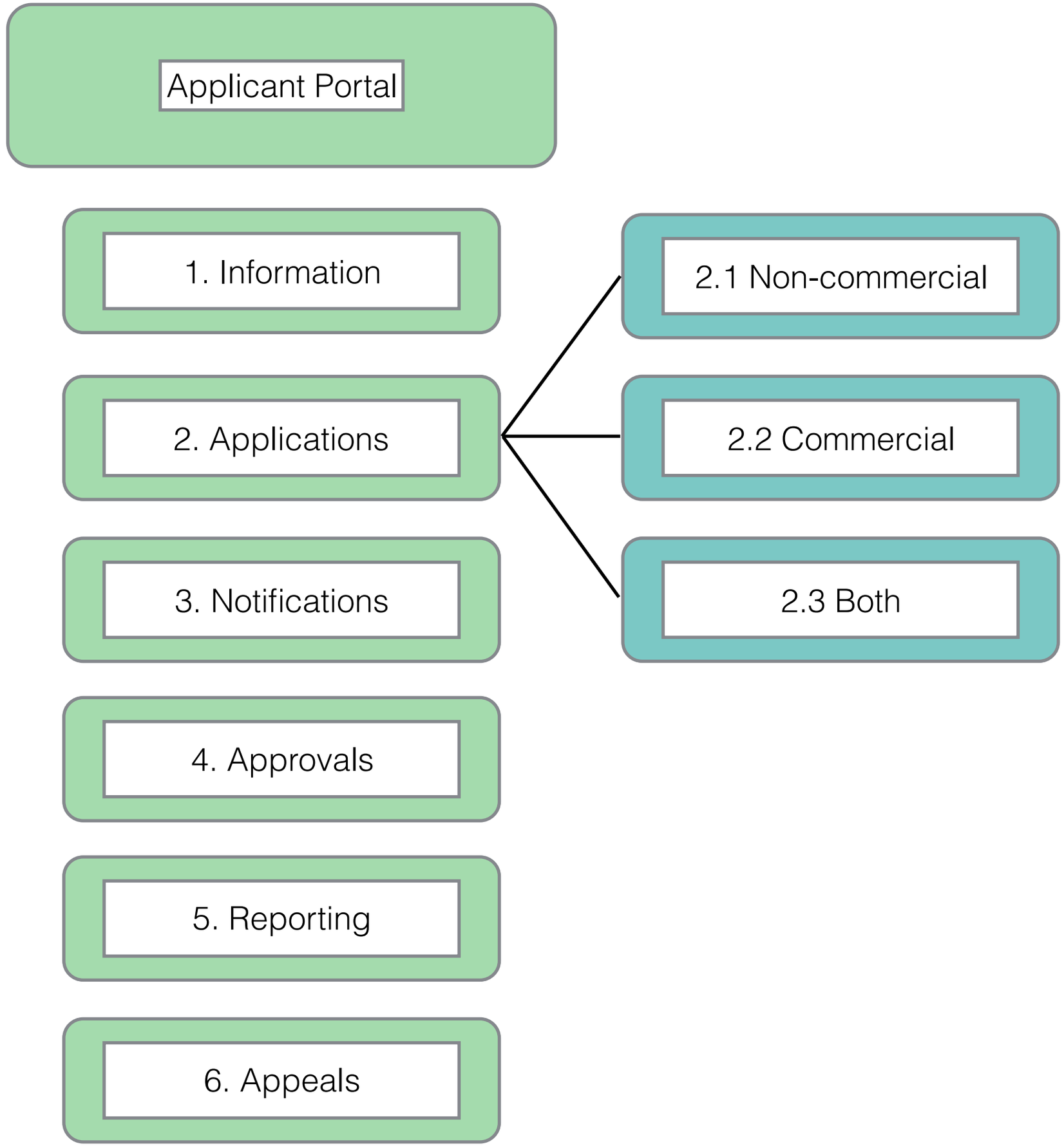
The site was written in rmarkdown in RStudio and rendered using knitr in the latest Preview version of RStudio supporting website builds. The site and its files are accessible in the Github repository.

http://poldham.github.io/abs_permits

Applicants

(illustration of applicants section)


Applicant Portal
1. Information
1.1 Applicant guide
1.2 Applicant checklist
2. Applications
3. Notifications
4. Approvals
5. Reporting
6. Appeals


Applicant Portal
1. Information
2. Applications
3. Notifications
4. Approvals
5. Reporting
6. Appeals
2.1 Non-commercial
2.2 Commercial
2.3 Both

Applicant Portal

1. Information

2. Applications

3. Notifications

3.1 Receive Notifications

3.2 Respond Notifications

4. Approvals

5. Reporting

6. Appeals

Applicant Portal

1. Information

2. Applications

3. Notifications

4. Approvals

5. Reporting

6. Appeals

4.1 pdf permit

4.2 Mobile pass

4.3 Sample labels

4.4 HTML embed code

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virgin atlantic

GATE CLOSES
10:05

MANCHESTER - MAN...
MAN

HARTSFIELD JACKS...
ATL

FLIGHT NUMBER
VS109

SEAT
62A

DEPARTURE
14Jun 10:35

PASSENGER NAME
OLDHAM/PAULDR

CABIN
Economy

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virgin atlantic

GATE CLOSES
10:05

MANCHESTER - MAN...
MAN

HARTSFIELD JACKS...
ATL

FLIGHT NUMBER
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SEAT
62A

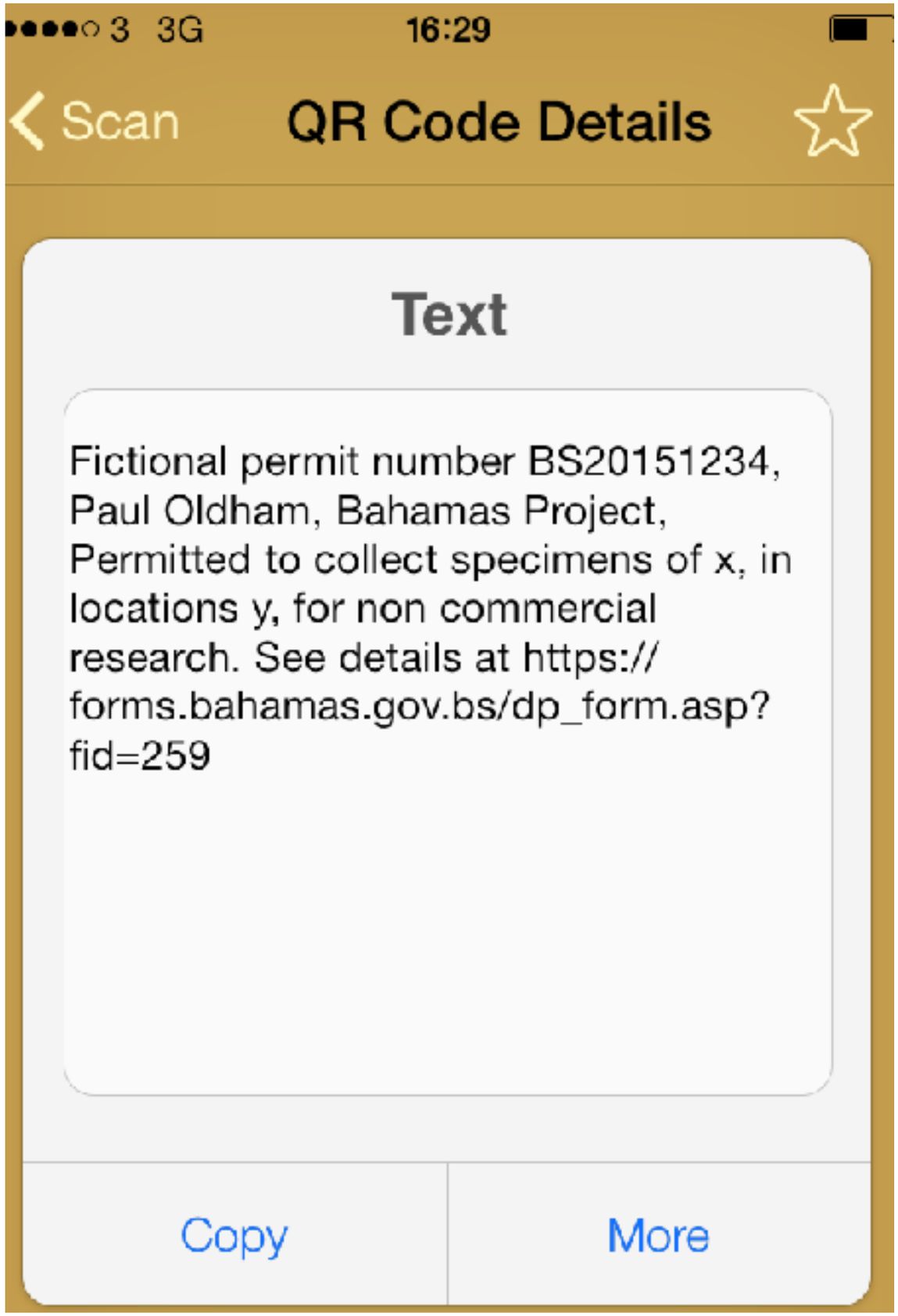
DEPARTURE
14Jun 10:35

PASSENGER NAME
OLDHAM/PAULDR

CABIN
Economy

this pass has expired

Quick Response Code



Applicant Portal

1. Information

2. Applications

3. Notifications

4. Approvals

5. Reporting

- 5.1 Publications
- 5.2 Patents
- 5.3 Products

6. Appeals

Applicant Portal

1. Information

2. Applications

3. Notifications

4. Approvals

5. Reporting

6. Appeals

5.1 Guidance

5.2 Timeline

5.3 Notifications

5.4 Final Decision

Monitoring GR & TK

Three relatively easy targets and other more difficult targets in terms of monitoring:

1. Taxonomic Data (GBIF)
2. Scientific Literature (commercial databases such as Thomson Reuters Web of Science or open access sources such as crossref, Biomed central).
3. Patent literature. Large scale text mining of patent data.
4. Sequence data (Genbank, Barcode of Life database - 25,000 entries for Kenya)
5. Product information (market approvals)
6. TK related (issue of data sources and methods)

https://poldham.github.io/abs/index.html

Draft Handbook on ABS Monitoring

Introduction

Secure https://poldham.github.io/abs/

ABS Monitoring | Get Started | Taxonomic Data | Scientific Literature

Introduction

Paul Oldham

This Handbook focuses on methods and techniques for monitoring the use of genetic resources and traditional knowledge under the Nagoya Protocol of the Convention on Biological Diversity. The aim of the Handbook is to assist governments with identifying practical tools and methods for implementing monitoring under the Nagoya Protocol as a precondition for building trust in international relationships involving exchanges of genetic resources and associated traditional knowledge.

The Handbook is in a very early stage of development. Drawing on the publication model in data science, draft articles will be published as they become available and will then be corrected, revised and expanded. Comments are welcome and can be made using Github issues at the project repository here. This is an open source project and all data is available in the Github project repository. Please see the Contributing page for more information.

The Handbook explores software tools and methods for tracking and monitoring genetic resources and traditional knowledge. The Handbook is intended to support the development and implementation of an online permit and monitoring system in Kenya and other partner countries. The Handbook is being developed with support from the ABS Initiative and contributions from partner countries interested in developing monitoring capacity.

Article 17 of the Nagoya Protocol calls upon countries to develop cost effective tools to enhance transparency about the utilisation of genetic resources and associated traditional knowledge.

In practice this will involve establishing links between access and benefit sharing permits under Article 6 of the

https://poldham.github.io/abs/index.html

Mapping GBIF data with Leafl ×

Secure https://poldham.github.io/abs/mapgbif.html#creating_a_web_app_with_shiny

ABS Monitoring | Get Started | Taxonomic Data | Scientific Literature | Geographic Names

Mapping GBIF data with Leaflet in R

Paul Oldham

Introduction

In the last section we discussed how to obtain and then process data from the Global Biodiversity Information Facility using the `rgbif` package from rOpenSci in R with RStudio.

In this section we explore one of the real strengths of GBIF data by visualizing the data for Kenya on a map using the popular `leaflet` library. We will then create an online interactive version of the map as a Shiny app.

The image below from the GBIF website displays a global map of occurrence records.

https://poldham.github.io/abs/index.html

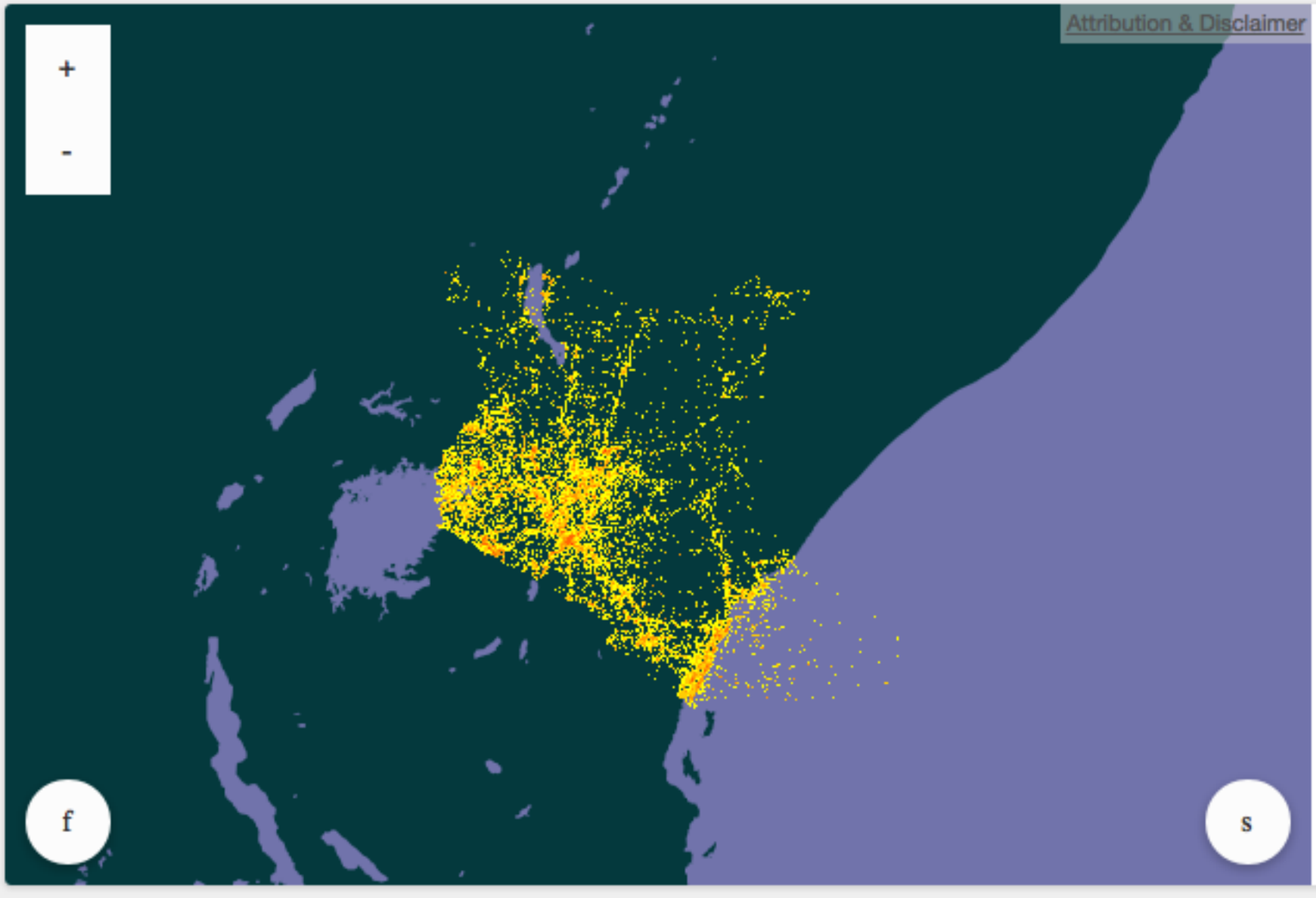
Kenya

A GBIF Voting participant from Africa
Names of countries, territories and islands are based on the ISO 3166-1 standard.

Country Report
1/1/16 - 31/12/16

Download

Summary | Data About | Data Publishing | Participation | News and Events | Publications



Data about Kenya

- 621 occurrence datasets with 707,407 records.
- No checklist datasets.
- No metadata-only datasets relevant to Kenya.
- 35 countries contribute data about Kenya.

View records shown on the map

Map a sample of GBIF Data | "Euclea natalensis" - The Le

Secure https://poldham.shinyapps.io/gbifapp/

Map a sample of GBIF Data

kingdom

Plantae

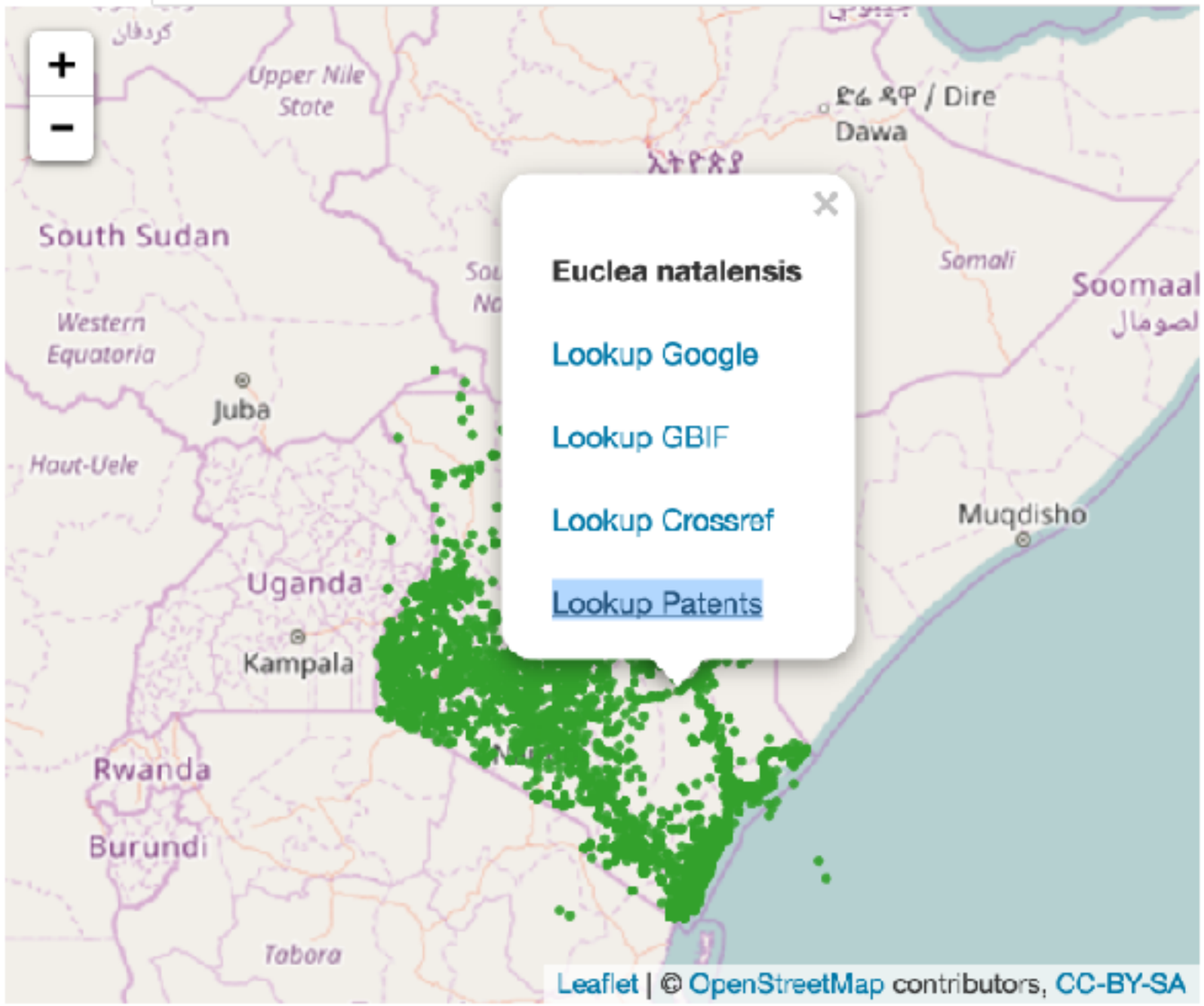
csv Download

About

This app provides an example of the visualisation of 30,000 species occurrence records for Kenya from the Global Biodiversity Information Facility. To learn how the data was created see this article.

The raw data can be accessed from the following DOI and please cite as:

Map | Summary | Table



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Map a sample of GBIF Data | "Euclea natalensis" - The Len

Secure https://www.lens.org/lens/search?q="Euclea+natalensis"&jo=true&j=EP&j=JP&j=US&j=...

LENS.ORG | English | PatSeq | Guest Work Area | Register / Sign in | Support

Home > 14 (7 families) results for ""Euclea natalensis""

"Euclea natalensis" Refine Search

Collection Management

Collection Management: allows you to create, add to, manage and edit collections of search results.

Create Collection

Results for "Euclea natalensis"

Sort by Rank

WO 2015/049643 A1

Doc Type: Patent Application ID: lens.org/159-072-474-482-937

Shoot Extracts And Compositions Of Euclea Natalensis For Immune Modulation And Hepatoprotection

Published: Apr 9, 2015 Family: 1 Cited: 0 Info: Full Text

Applicant: Univ Pretoria

WO 2002/026762 A1

Doc Type: Patent Application ID: lens.org/169-580-868-178-309

Triterpenes Having Antibacterial Activity

Published: Apr 4, 2002 Family: 5 Cited: 21 Info: Full Text Collections

Applicant: Univ Minnesota, Krasutsky Pavel A, Carlson Robert M

US 6689767 B2

Doc Type: Granted Patent ID: lens.org/181-793-940-966-769

Triterpenes Having Antibacterial Activity

Refine Search

Date Range

Jurisdictions 4

- United States of America (7)
- WIPO (5)
- European Patent Office (2)
- JP - Japan (0)

More Clear Refine

Inventors

https://poldham.shinyapps.io/gbifapp/

Map a sample of GBIF Data | "Euclea natalensis" - The Le

Secure https://poldham.shinyapps.io/gbifapp/

Map a sample of GBIF Data

kingdom

Plantae

csv Download

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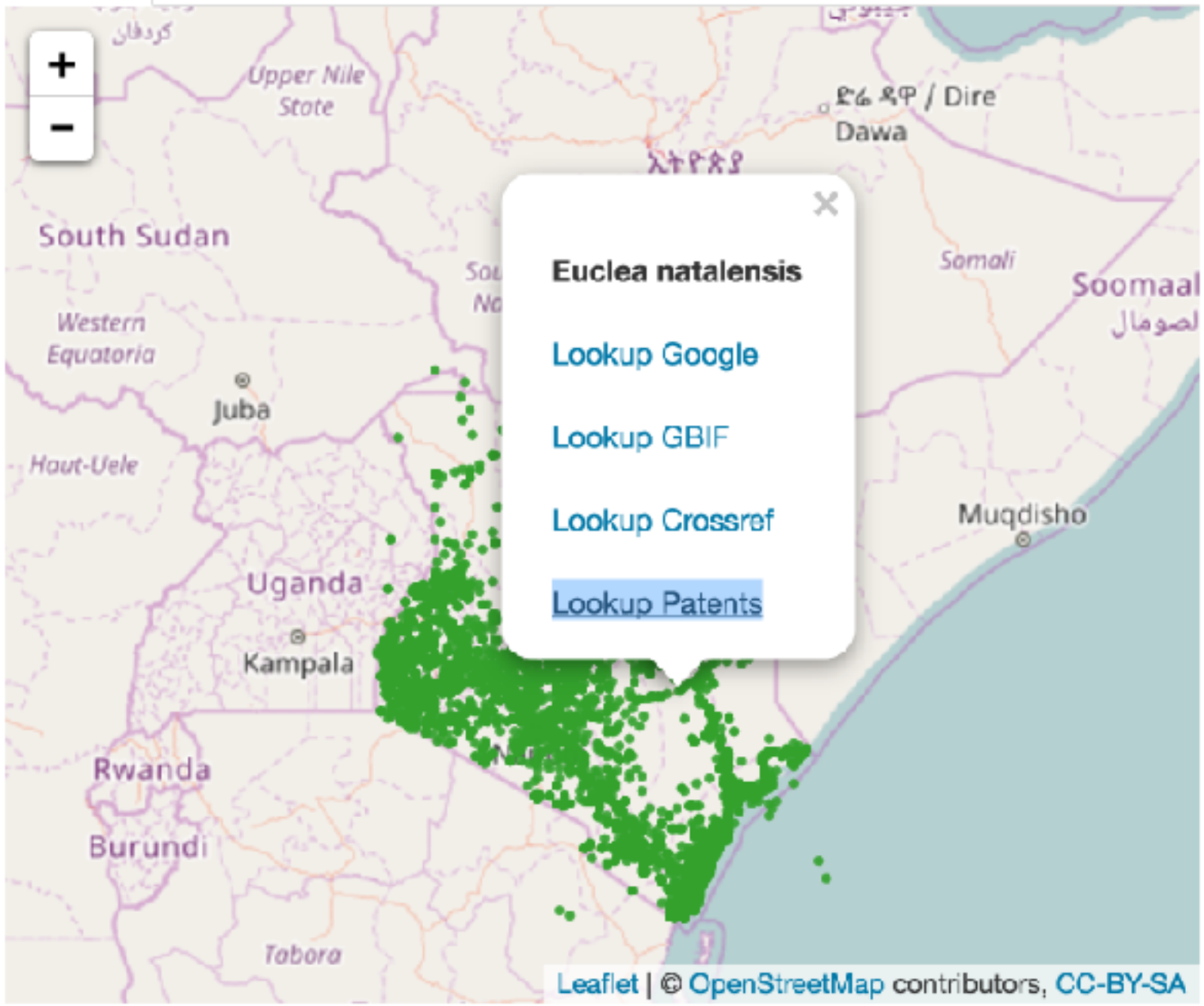

https://poldham.shinyapps.io/gbifapp/

Map a sample of GBIF Data | "Euclea natalensis" - The Le | Crossref Metadata Search

search.crossref.org/?q=%2BEuclea+%2Bnatalensis

Crossref

+Euclea +natalensis

Link References Status API Help Sign in

TYPE
- Journal Article (16)
- Dissertation (1)

YEAR
- 2007 (3)
- 2006 (2)
- 2008 (2)
- 2016 (2)
- 1975 (1)
- 1976 (1)
- 1977 (1)
- 2000 (1)
- 2001 (1)
- 2005 (1)

PUBLICATION
- South African Journal of Botany (7)
- Journal of Ethnopharmacology (3)
- Phytochemistry (2)
- Planta Medica (2)
- Brazilian Oral Research (1)
- Journal of the Chemical Society, Chemical Communications (1)

CATEGORY
- Plant Science (9)
- Drug Discovery (5)
- Pharmacology (5)

SORT BY: **RELEVANCE** PUBLICATION YEAR

PAGE 1 OF 17 RESULTS

Seasonal variation of naphthoquinones in **Euclea natalensis** subspecies natalensis

Journal Article published **Apr 2008** in **South African Journal of Botany** volume **74** issue **2** on pages **218** to **224**

Authors: M.J. Bapela, N. Lall, J.J.M. Meyer

https://doi.org/10.1016/j.sajb.2007.11.007 Actions

Pentacyclic triterpenoids of **Euclea natalensis**

Journal Article published **Feb 1975** in **Phytochemistry** volume **14** issue **2** on pages **584** to **585**

Authors: Fausto Schiaffella, Luciano Fratini, Tarcisio Mazzetti, Vito Bellavita

https://doi.org/10.1016/0031-9422(75)85138-7 Actions

Naphthoquinone dimers and trimers from **Euclea natalensis**

Journal Article published **Jan 1977** in **Phytochemistry** volume **16** issue **1** on pages **117** to **120**

Authors: Margarida A. Ferreira, A.Correia Alves, M.Áurea Cruz Costa, M.Isabel Paul

https://doi.org/10.1016/0031-9422(77)83026-4 Actions

Antilisterial activity of **Euclea natalensis** and its naphthoquinones

Journal Article published **2007** in **Planta Medica** volume **73** issue **09**

Authors: N Lall, JJM Meyer, F van der Kooy

https://doi.org/10.1055/s-2007-986881 Actions

Authentication of **Euclea natalensis** leaf by botanical identification

Journal Article published **Aug 2010** in **Planta Medica** volume **76** issue **12**

Authors: G da Silva, E Gomes, R Serrano, O Silva

https://doi.org/10.1055/s-0030-1264315 Actions

https://poldham.shinyapps.io/gbifapp/

Crossref Metadata Search

search.crossref.org/?q=kenya

Crossref

kenya

TYPE

- Journal Article (22,477)
- Chapter (2,085)
- Dataset (390)
- Conference Paper (340)
- Component (90)
- Book (82)
- Report (55)
- Other (50)
- Monograph (47)
- Entry (46)

YEAR

- 2015 (2,064)
- 2014 (1,992)
- 2013 (1,574)
- 2012 (1,307)
- 2016 (1,294)
- 2011 (1,186)
- 2010 (1,030)
- 2009 (1,020)
- 2008 (881)
- 2007 (834)

PUBLICATION

SORT BY: **RELEVANCE** PUBLICATION YEAR

Kenya

Component published

http://dx.doi.org/10.1787/124030037050 Actions

Kenya

Component published

http://dx.doi.org/10.1787/270604575355 Actions

Kenya

Entry published in **SpringerReference**

http://dx.doi.org/10.1007/springerreference_187126 Actions

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Component published

http://dx.doi.org/10.1787/888933071042 Actions

Données : Kenya

Component published

http://dx.doi.org/10.1787/888933072030 Actions

Prelims - Kenya

Crossref provides access to over 22,000 publications about Kenya

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_crossref.R | kenya_publications_crossref.Rmd* | kenya_lakes_crossref$data

Filter

title	type	URL
Conservation problems at Lake Nakuru	book-chapter	http://dx.doi.org/10.5040/97
Conservation problems at Lake Nakuru : J. Hopcraft	book-chapter	http://dx.doi.org/10.5040/97
Bog Lake	reference-entry	http://dx.doi.org/10.1002/04
Lake Nakuru Black Rhinoceros Sanctuary	journal-article	http://dx.doi.org/10.1017/s0
Lake Nakuru Black Rhinoceros Sanctuary	journal-article	http://dx.doi.org/10.1017/s0
The Hippos of Lake Baringo	journal-article	http://dx.doi.org/10.1017/s0
Lake	dataset	http://dx.doi.org/10.1036/10
On the limnology of Lake Baringo (Kenya): II. Pelagic p...	journal-article	http://dx.doi.org/10.1023/b:h
THE FLAMINCOES OF LAKE NAKURU	journal-article	http://dx.doi.org/10.1080/00
Lake Nakuru Black Rhinoceros Sanctuary	journal-article	http://dx.doi.org/10.1017/s0
Pesticide residues in birds at Lake Nakuru, Kenya	journal-article	http://dx.do
Metabolism of nonparticulate phosphorus in an acid	report	http://dx.do

Showing 1 to 13 of 1,000 entries

Console

Downloading crossref with rcrossref package in RStudio

Results: 53,392
(from Web of Science Core Collection)

You searched for: TOPIC: (kenya) *OR* **ADDRESS:** (kenya) **...More**

Create Alert

Refine Results

Search within results for...

Web of Science Categories

- PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH (5,357)
- INFECTIOUS DISEASES (4,023)
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- PARASITOLOGY (3,172)

more options / values...

Refine

Document Types

Sort by: Publication Date -- newest to oldest

Page 1 of 5,340

Select Page | Save to EndNote online | Add to Marked List

Analyze Results

Citation Report feature not available. [?]

1. **Mapping Prosopis spp. with Landsat 8 data in arid environments: Evaluating effectiveness of different methods and temporal imagery selection for Hargeisa, Somaliland**

By: Ng, Wai-Tim; Meroni, Michele; Immitzer, Markus; et al.
INTERNATIONAL JOURNAL OF APPLIED EARTH OBSERVATION AND GEOINFORMATION Volume: 53 Pages: 76-89 Published: DEC 2016

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2. **Managing heritage, making peace: history, identity, and memory in contemporary Kenya**

By: Peach, Douglas Dowling
INTERNATIONAL JOURNAL OF HERITAGE STUDIES Volume: 22 Issue: 10 Pages: 857-858 Published: DEC 2016

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Usage Count

3. **The toughest recorded spider egg case silks are woven into composites with tear-resistant architectures**

By: Alam, Parvez; Otieno, Danish; Nuhamunada, Matin; et al.
MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS Volume: 69 Pages: 195-199 Published: DEC 1 2016

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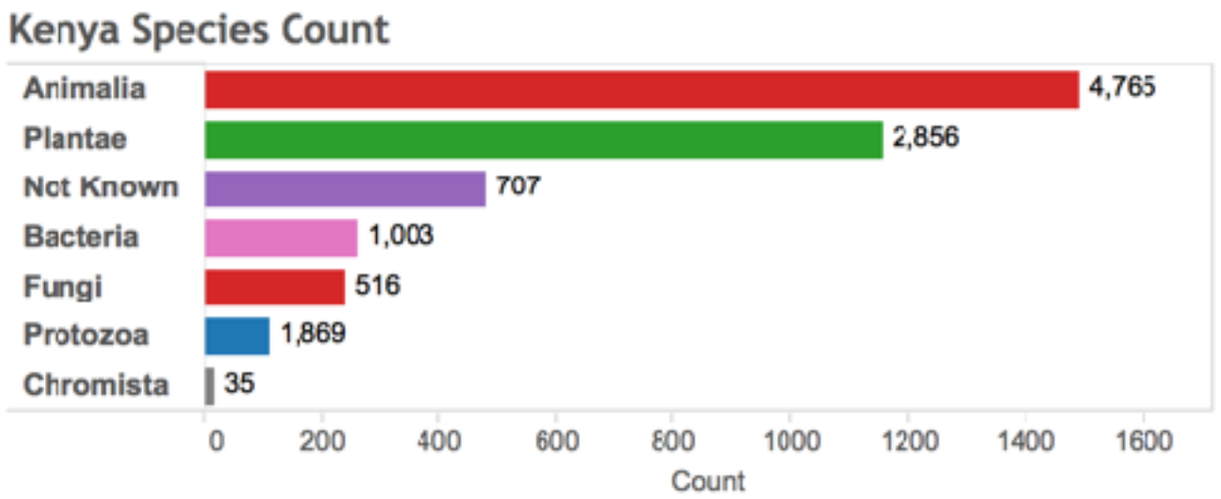
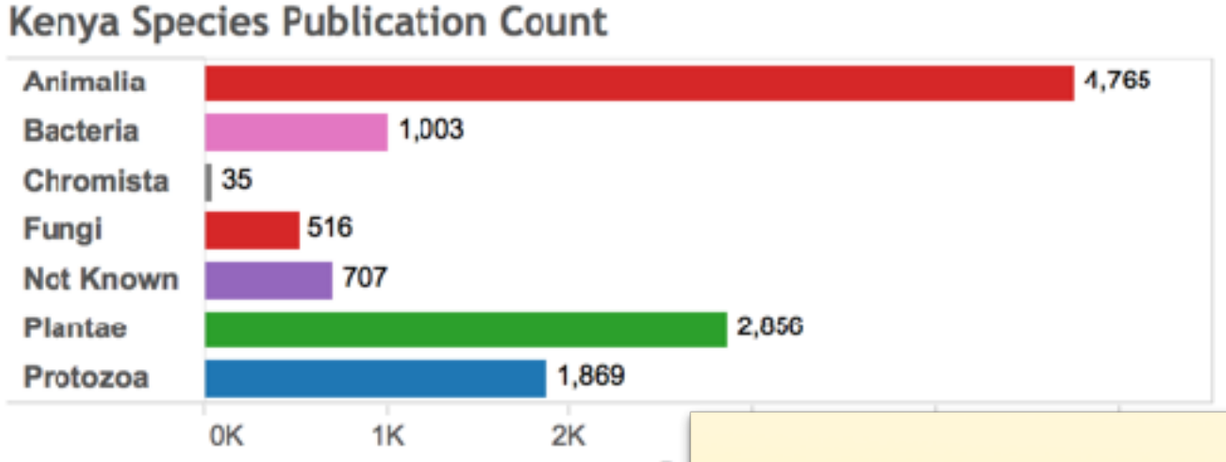


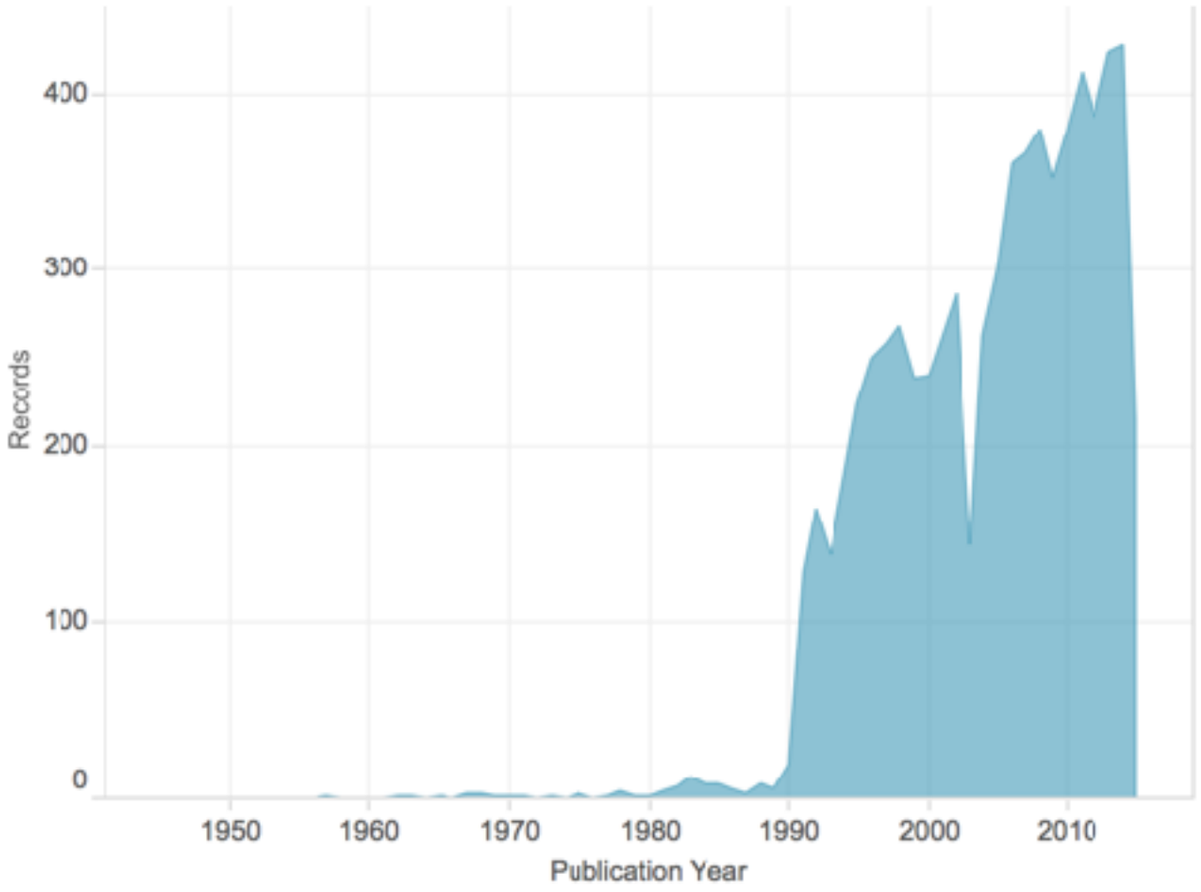


Kenya. Approx 3,752 species in the scientific literature.

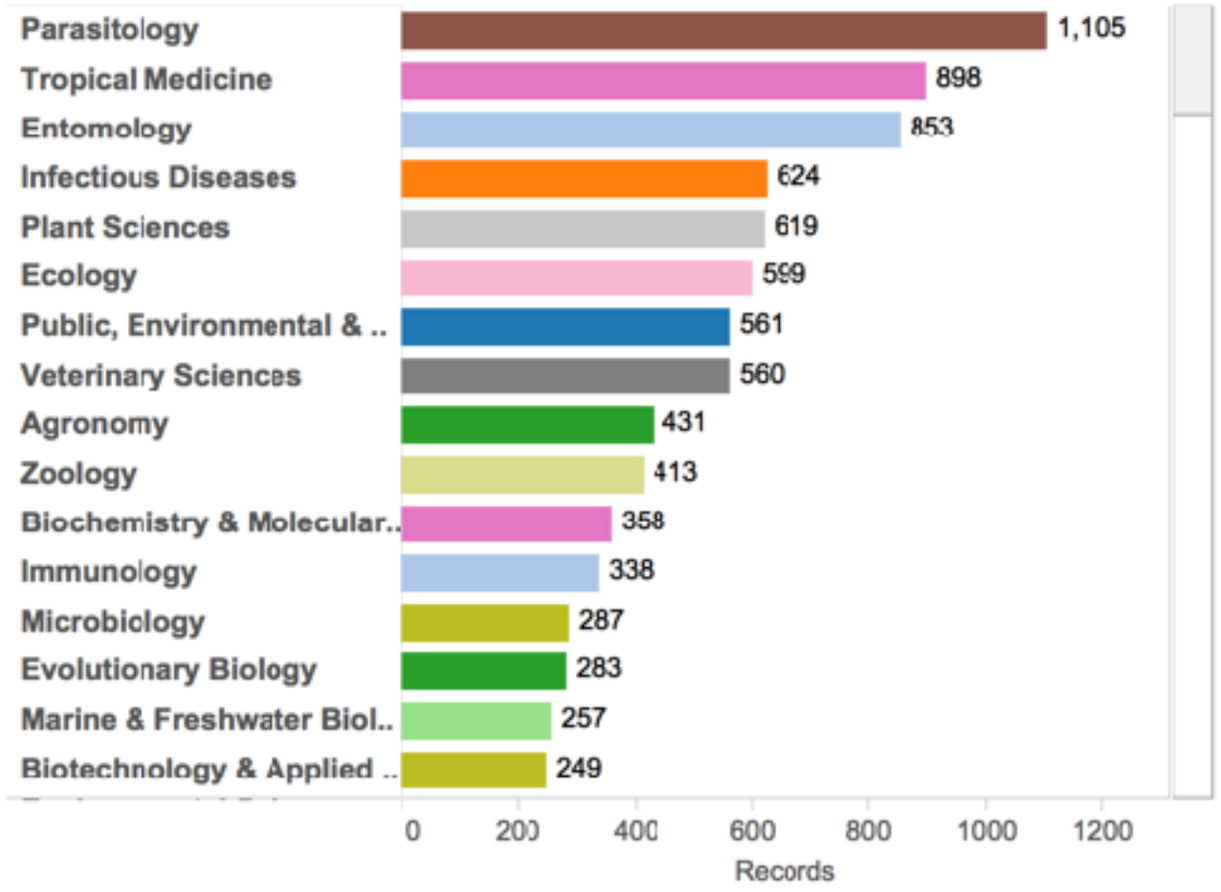
S

Species names appearing in the Title, Abstract, Author Keywords or Keywords Plus.

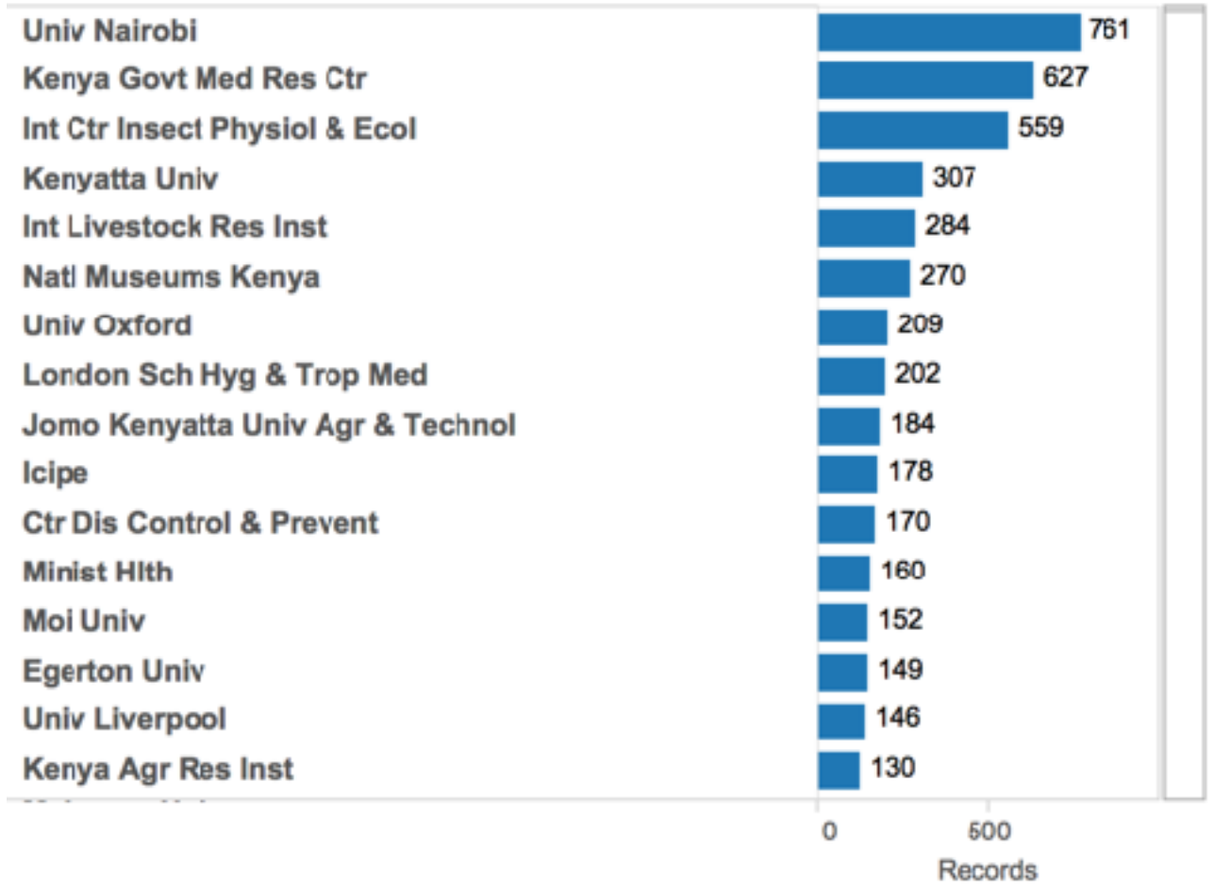
Kenya Species Trends



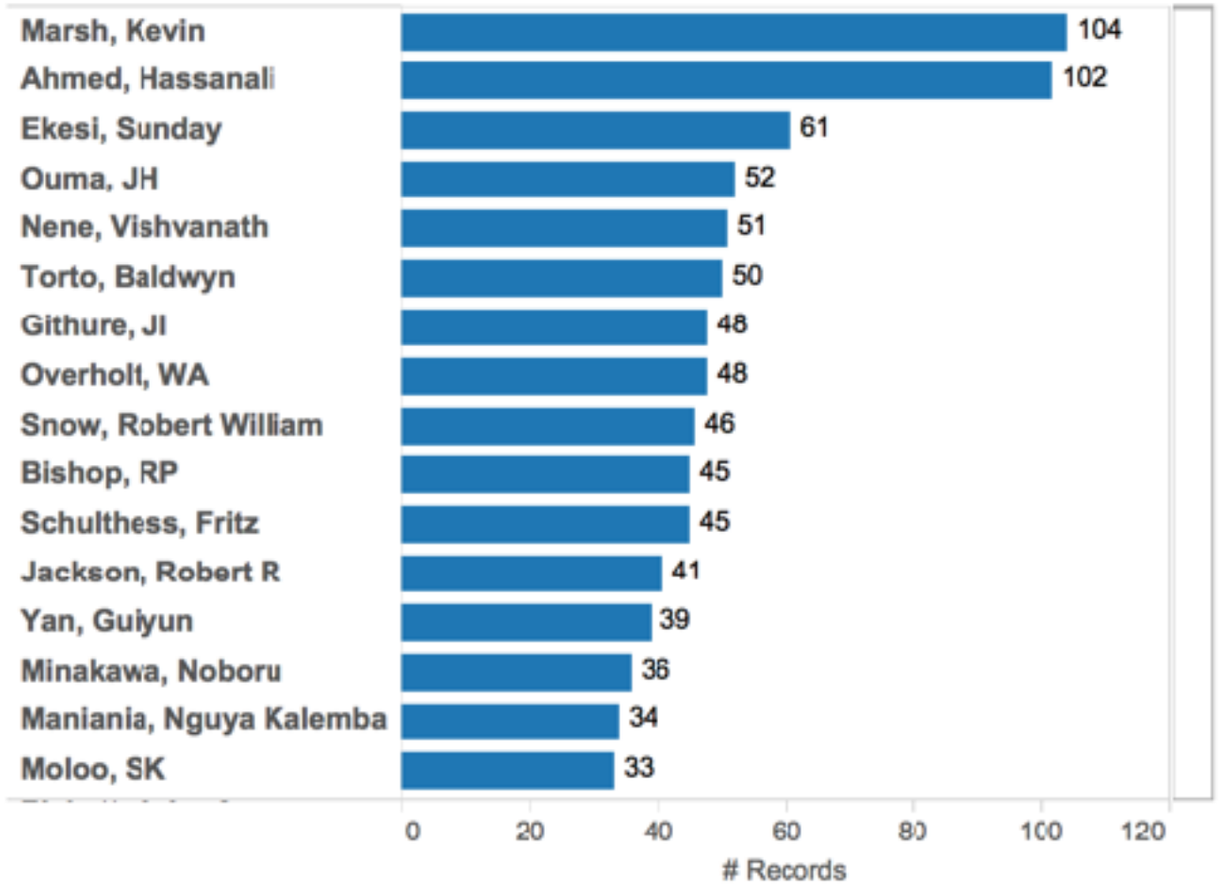
Kenya Species Subject Categories



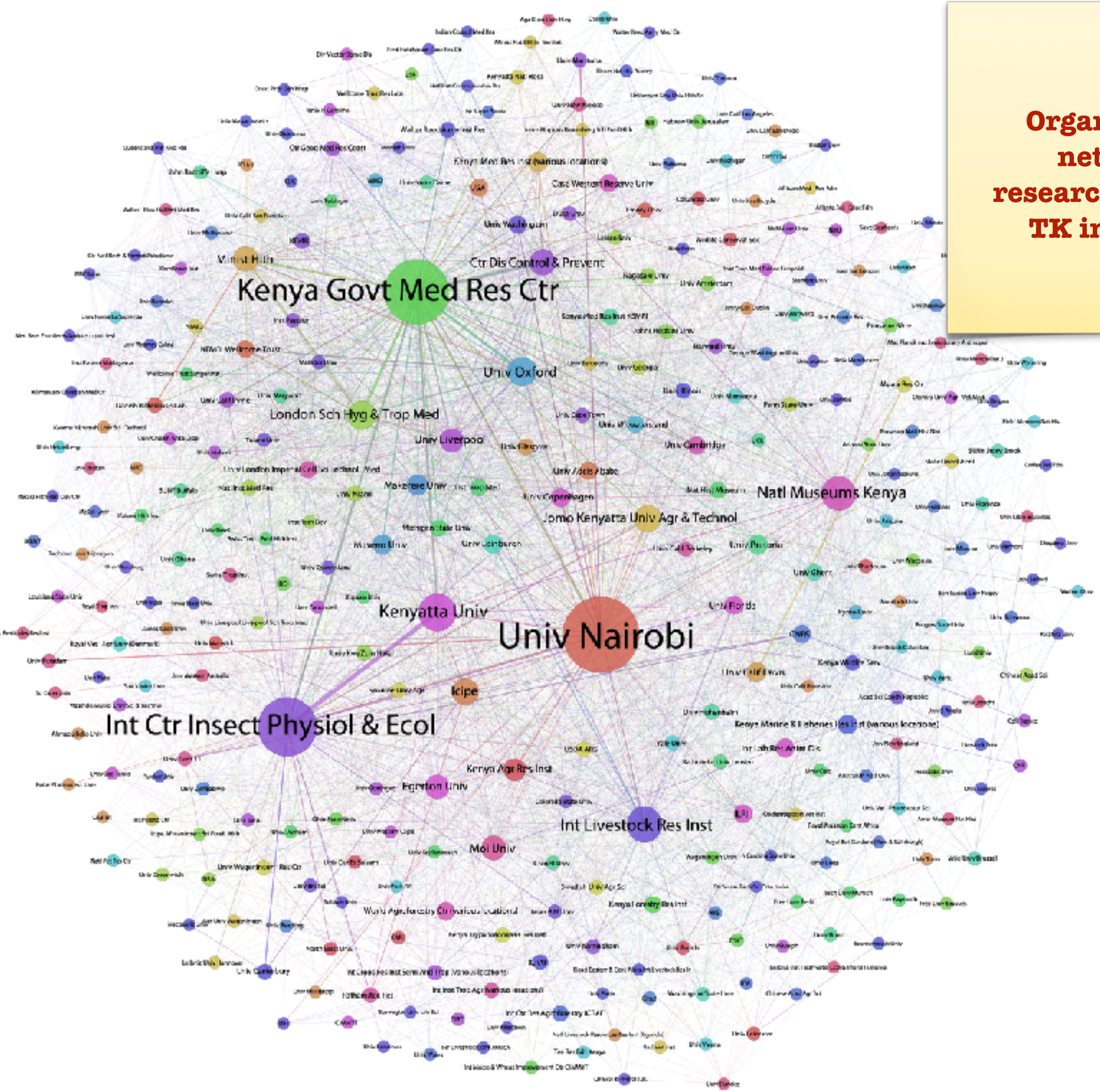
Kenya Species Organisations



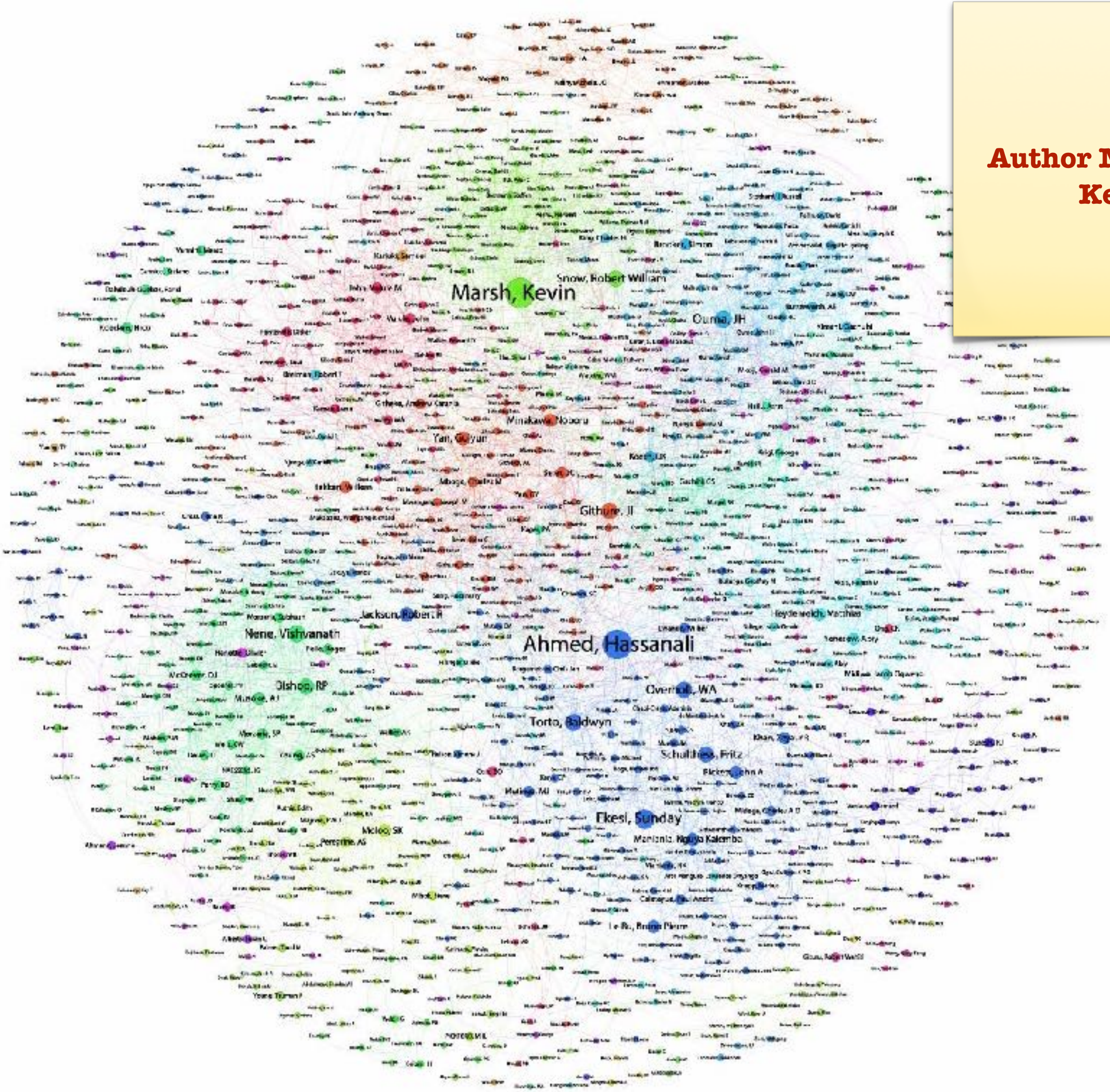
Kenys Species Author



Organisation network researching GR & TK in Kenya



Author Network in Kenya



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Go to file/function | Addins | abs

kws_permits | mapgbif.Rmd | server.R

Filter

	project_title	principal_investigator_raw	research_institution	research_institution_cl
1	Population ecology of Maasai giraffe (G.c. tippelskirc...	Mr. Thadeus Obari	University of Nairobi	University of Nairobi
2	Domestication and application of biodiversity related...	Ms. Parita Shah	University of Nairobi	University of Nairobi
3	A case study on the successful management of wildli...	Ms. Clio Maggi	University of London	University of London
4	Characterization of tsetse-endosymbiont interactions...	Ms. Florence Wamwiri	Egerton University	Egerton University
5	Meru Cheetah Project	Dr. Elena Chelysheva	Action for Cheetahs in Kenya	Action for Cheetahs in
6	Investigating the dynamics of infectious diseases wit...	Ms. Juliet Kinyua	Texas Tech University	Texas Tech University
7	Gamma Ray Spectroscopy Analysis of Sedimental Dep...	Mr. William Langat	Kenyatta University	Kenyatta University
8	Developing a new tooth wear-based dietary analysis ...	Mr. Juha Saarinen	Taita Research Station	Taita Research Station
9	Land Use and Land Tenure Changes and their impact ...	Mr. Joseph Ogoonoum Mbane	University of London	University of London
10	Ecological Impact of the invasive lantana camara L. o...	Mr. Simba Yusuf	Jomo Kenyatta University of Agriculture and Technolo...	Jomo Kenyatta Univer
11	Assessment of forage availability and quality for the ...	Mr. Obiet Lenard Okumu	Masinde Muliro University of Science and Technology	Masinde Muliro Unive
12	Bio-geography and conservation of small mammals i...	Mr. Bernard Agwanda	National Museums of Kenya	National Museums of
13	Effects of constructions of hospitality facilities in the ...	Ms. Stella Wanjiru Mwangi	Karatina University College	Karatina University Co
14	Concept for re-introduction of roan antelope to Masai...	Mr. Nick Cowell	Wildlife Conservation Trust	Wildlife Conservation
15	ASSESSMENT OF HUMAN WILDLIFE CONFLICT IN KITE...	Ms. Sera Njahira Waitara	Kenyatta University	Kenyatta University
16	Effects of territoriality on parasitism and parasitism o...	Dr. Las Stefan Ekernas	Princeton University	Princeton University

Showing 1 to 17 of 478 entries

Console

From Permit Data to Publications using Researcher IDs

Stephen Gitahi Kiama (0000-0

orcid.org/0000-0002-0217-6283

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Stephen Gitahi Kiama

ORCID ID

orcid.org/0000-0002-0217-6283

Country

Kenya

Other IDs

ResearcherID: C-9595-2016

Education (2) Sort

University of Bern: Bern, Switzerland

1997 to 2001

PhD (Institute of Anatomy)

Source: Stephen Gitahi Kiama Created: 2016-02-23

University of Nairobi: Nairobi, Nairobi, Kenya

1991 to 1994

Works (28) Sort

Evaluation of the use of Ocimum suave Willd. (Lamiaceae), Plectranthus barbatus Andrews (Lamiaceae) and Zanthoxylum chalybeum Engl. (Rutaceae) as antimalarial remedies in Kenyan folk medicine

J Ethnopharmacol

2015 | journal-article

DOI: 10.1016/j.jep.2015.12.013

Source: ResearcherID Preferred source

A systematic review of Rift Valley Fever epidemiology 1931-2014

Infect Ecol Epidemiol

2015 | journal-article

SOURCE-WORK-ID: 0223160811216-37

Source: ResearcherID Preferred source

Effects of anticancer drug docetaxel on the structure and function of the rabbit olfactory mucosa

Tissue Cell

2014 | journal-article

DOI: 10.1016/j.tice.2014.04.005

Source: ResearcherID Preferred source

Erythrina abyssinica prevents meningoencephalitis in chronic Trypanosoma brucei brucei mouse model

Metab Brain Dis

2014 | journal-article

www.boldsystems.org/index.php/Public_SearchTerms?taxon=&searchMe...

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Public Data Portal - Record List

Kenya | Public Data | Search

XML TSV Specimen Data | FASTA TRACE Sequences | XML TSV Combined | Show H

Generate map:

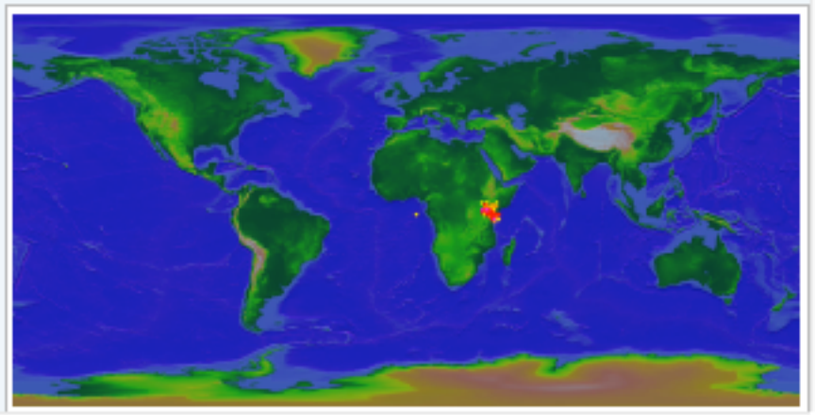
Showing Records 1 to 100 **Page** 1 2 3 4 5 6 7 8 9 10 next>> **Records Per Page** 100

- ABCDC001-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-101[sampleid], IVK101[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC002-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-102[sampleid], IVK102[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC003-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-103[sampleid], IVK103[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC004-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-104[sampleid], IVK104[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC005-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-105[sampleid], IVK105[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC006-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops
  Identifiers: CDC_IK-106[sampleid], IVK106[fieldid]
  Depository: National Museums of Kenya
  Collected in: Kenya, Nairobi
- ABCDC007-07 - **Otomops martiensseni [COI-5P:557]**
  Taxonomy: Chordata, Mammalia, Chiroptera, Molossidae, Otomops

Found 27028 published records forming 7298 BINs (clusters), with specimens from 1 country deposited in 106 institutions.

Of these records, 3217 have species names, and represent 968 species.

Specimen Distribution:



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Identifying Biodiversity in Patents using Text Mining

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RESEARCH ARTICLE

Biological Diversity in the Patent System

Paul Oldham, Stephen Hall, Oscar Forero

Published: November 12, 2013 • http://dx.doi.org/10.1371/journal.pone.0078737

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Abstract

Biological diversity in the patent system is an enduring focus of controversy but empirical analysis of the presence of biodiversity in the patent system has been limited. To address this problem we text mined 11 million patent documents for 6 million Latin species names from the *Global Names Index* (GNI) established by the Global Biodiversity Information Facility (GBIF) and Encyclopedia of Life (EOL). We identified 76,274 full Latin species names from 23,882 genera in 767,955 patent documents. 25,595 species appeared in the claims section of 136,880 patent documents. This reveals that human innovative activity involving biodiversity in the patent system focuses on approximately 4% of taxonomically described species and between 0.8–1% of predicted global species. In this article we identify the major features of the patent landscape for biological diversity by focusing on key areas including pharmaceuticals, neglected diseases, traditional medicines, genetic engineering, foods, biocides, marine genetic resources and Antarctica. We conclude that the narrow focus of human innovative activity and

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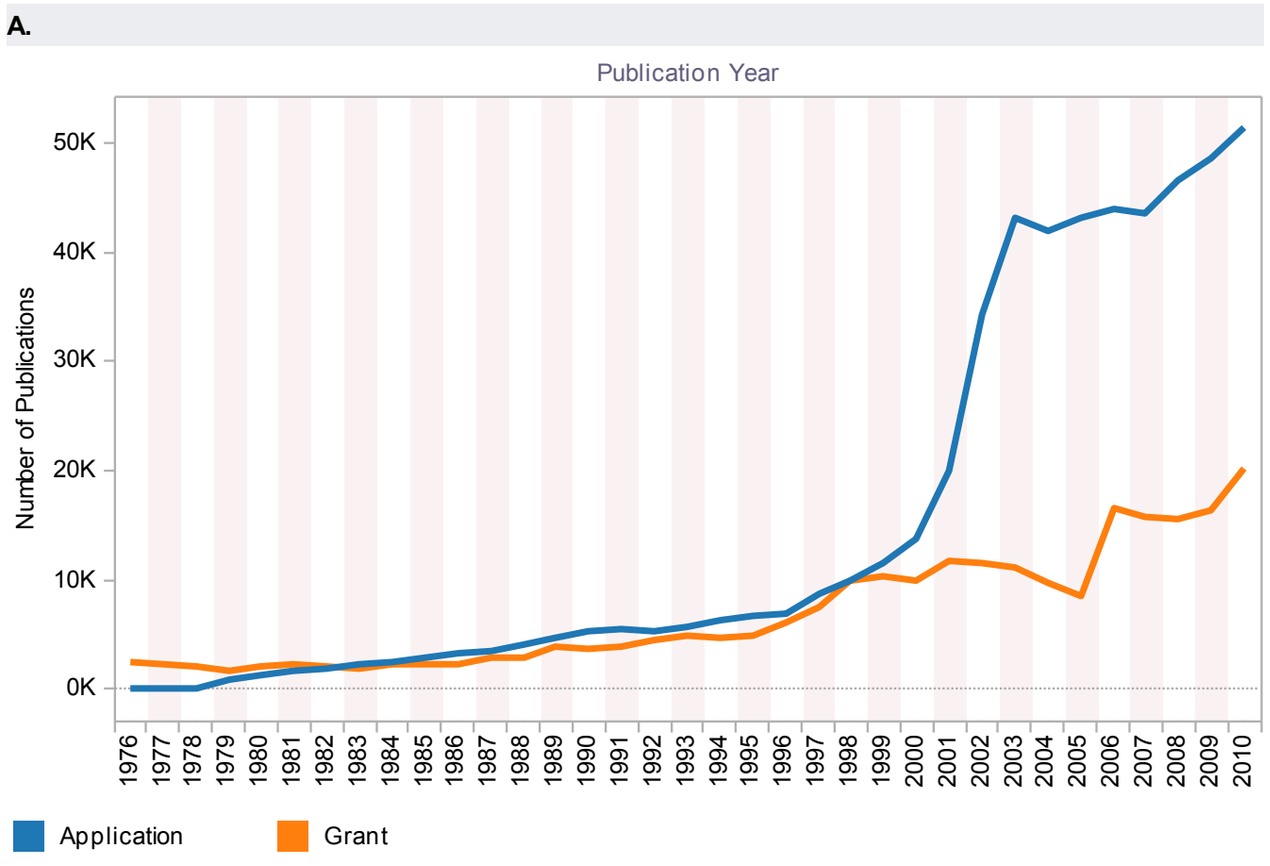
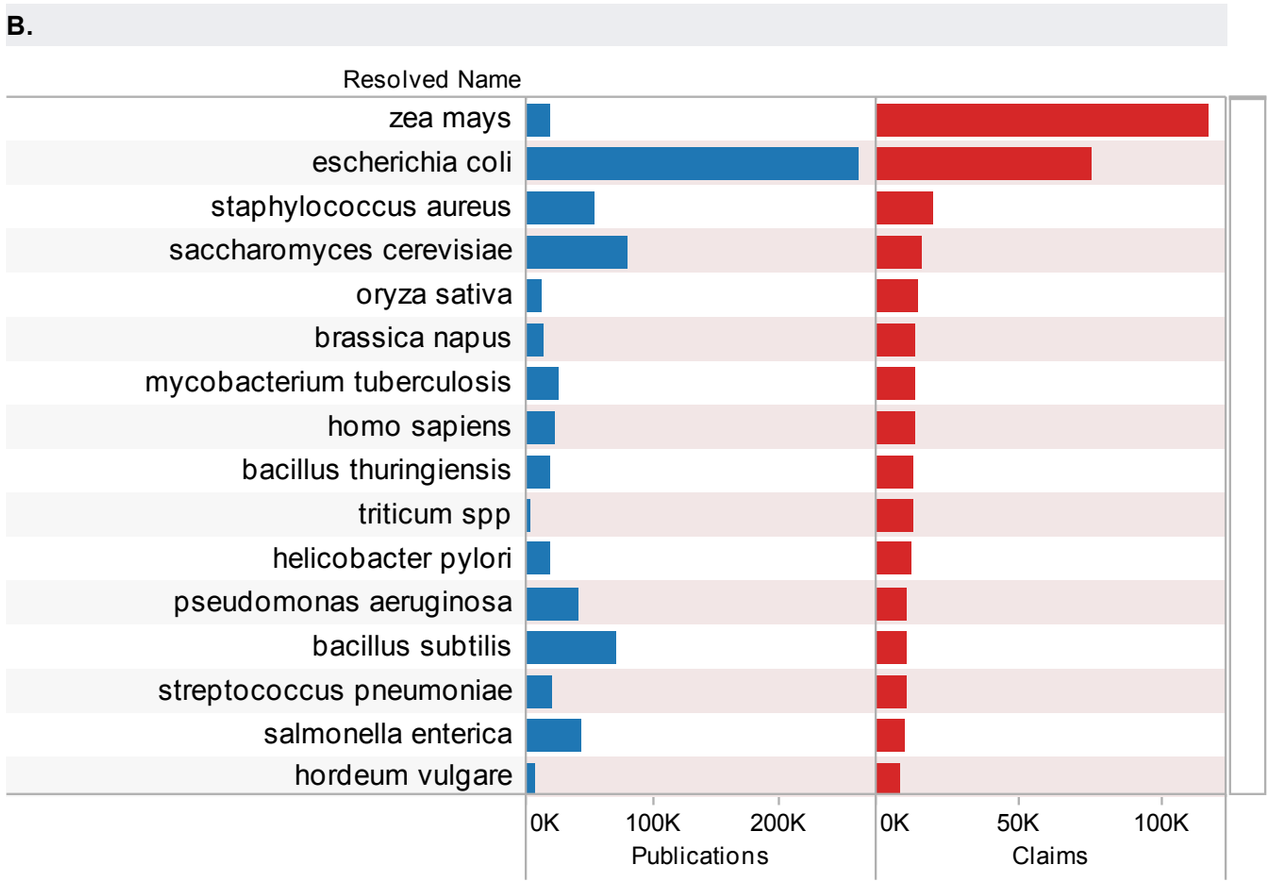
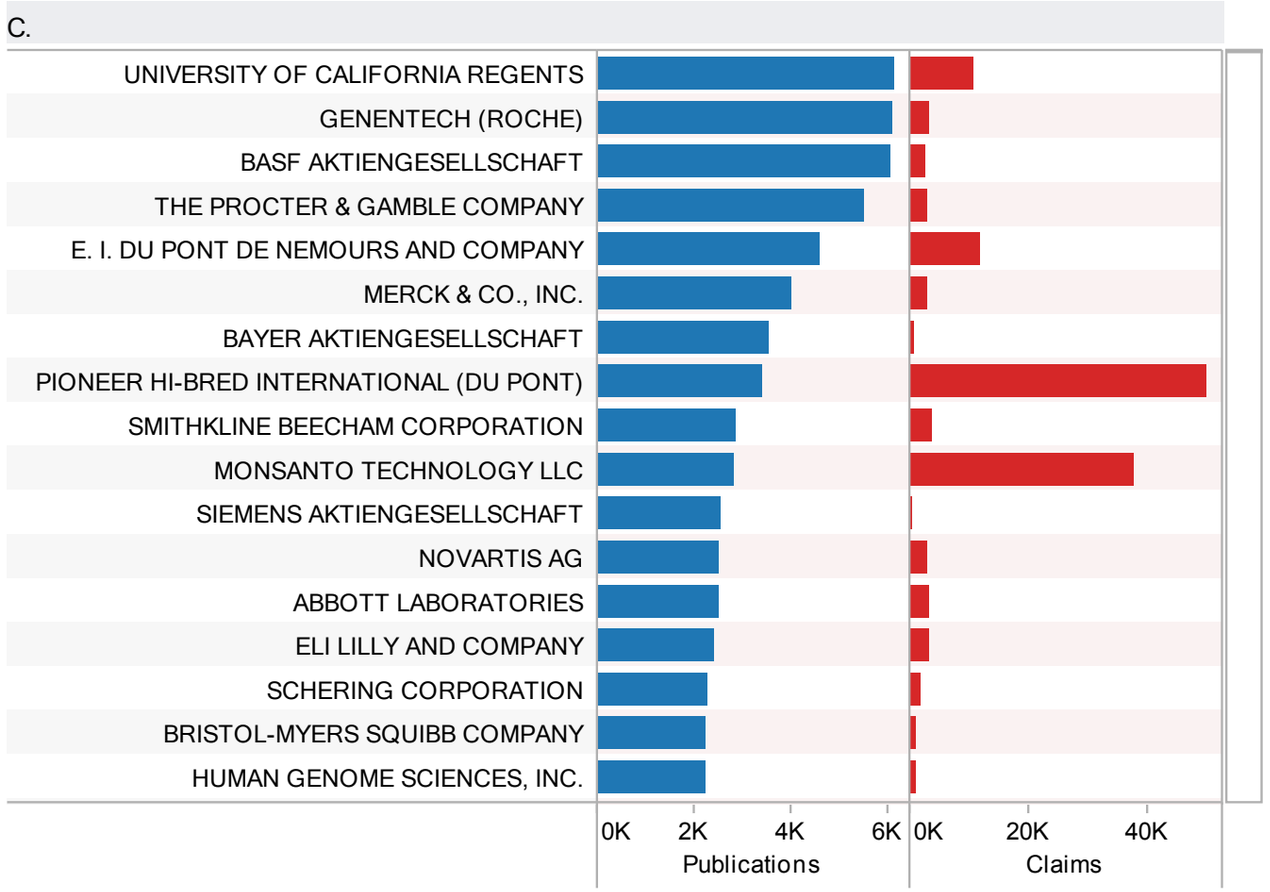
Subject Areas

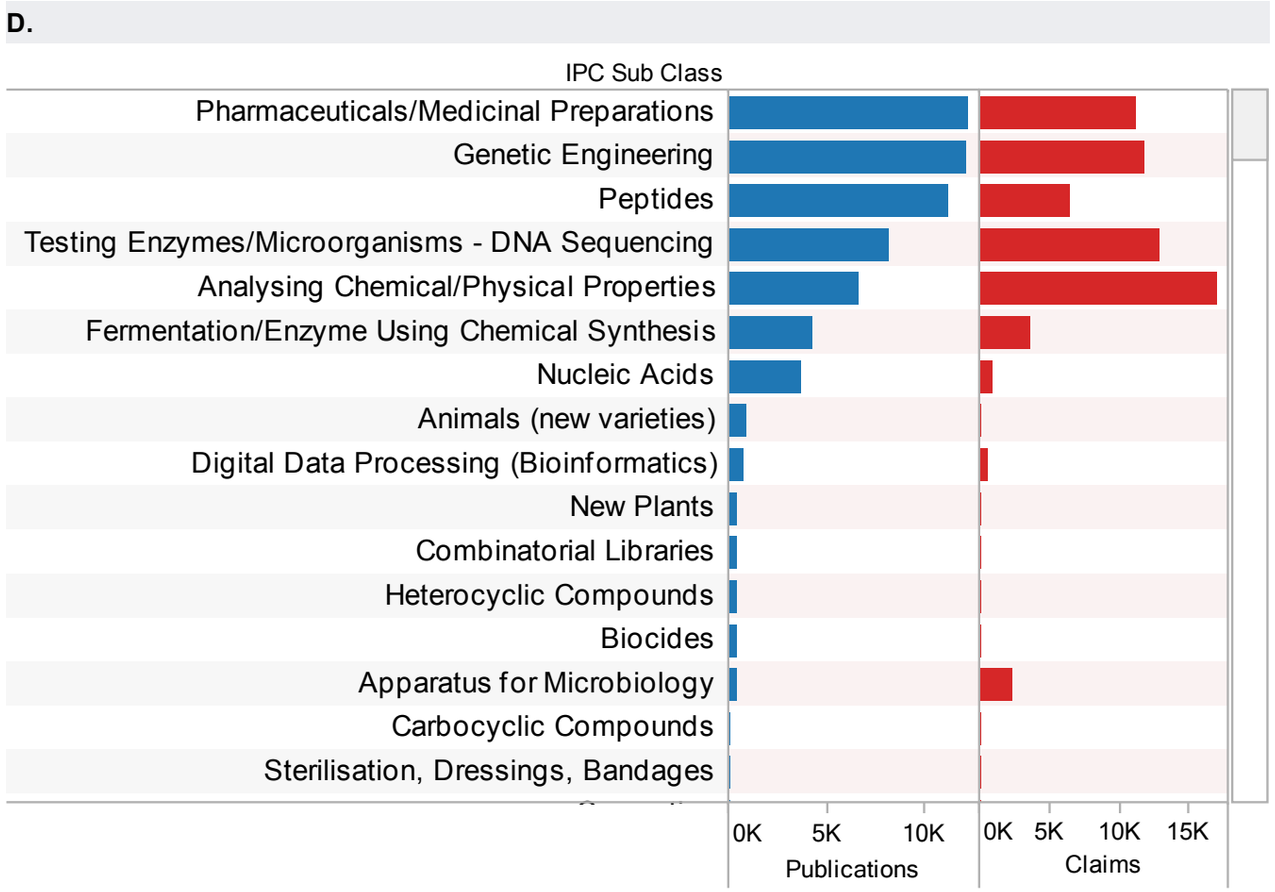
Biodiversity

Intellectual property



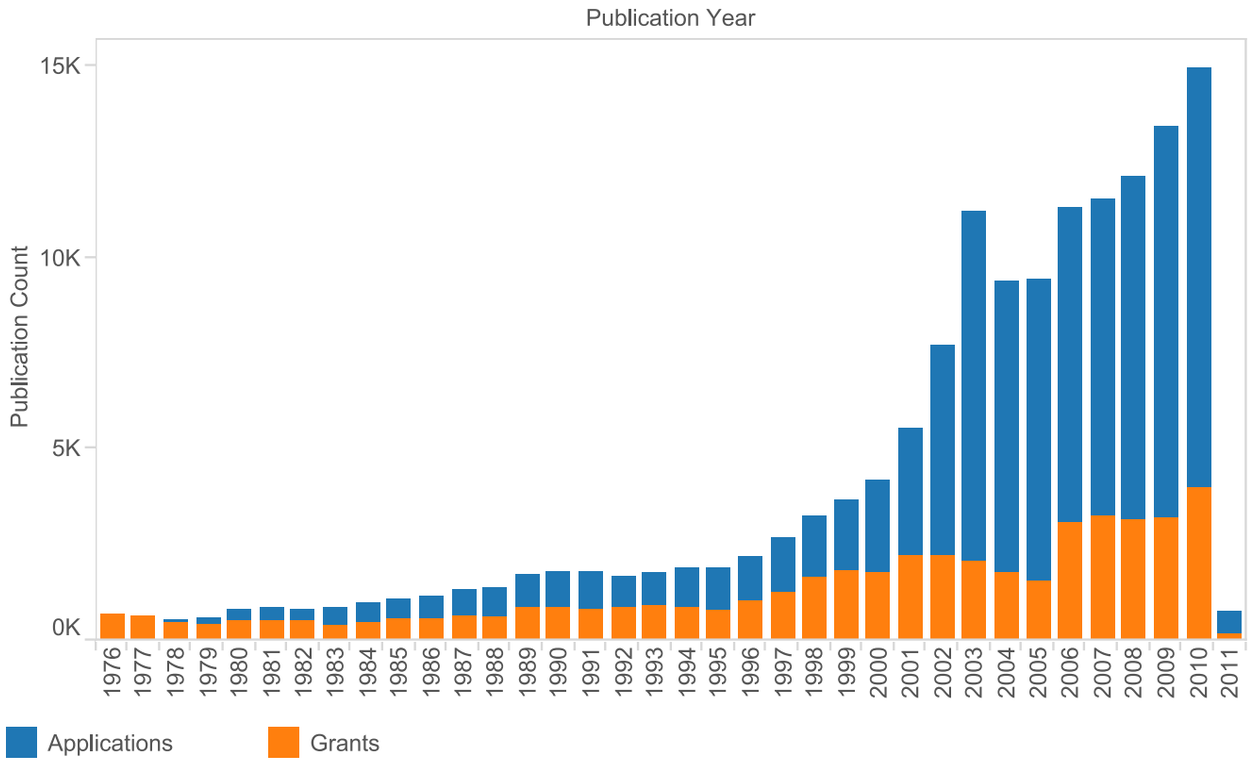




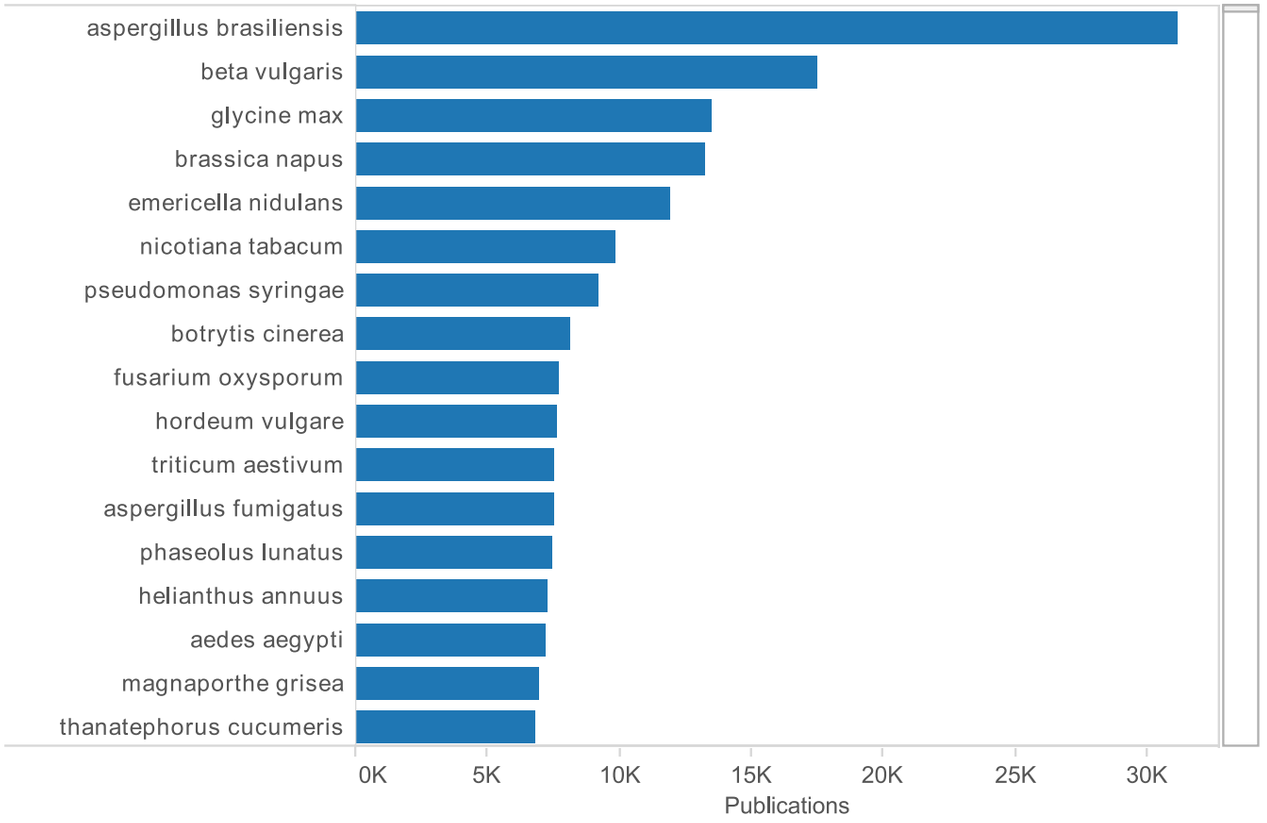


Oldham, Hall & Forero (2013) 'Biological Diversity in the Patent System'. PLOS One.

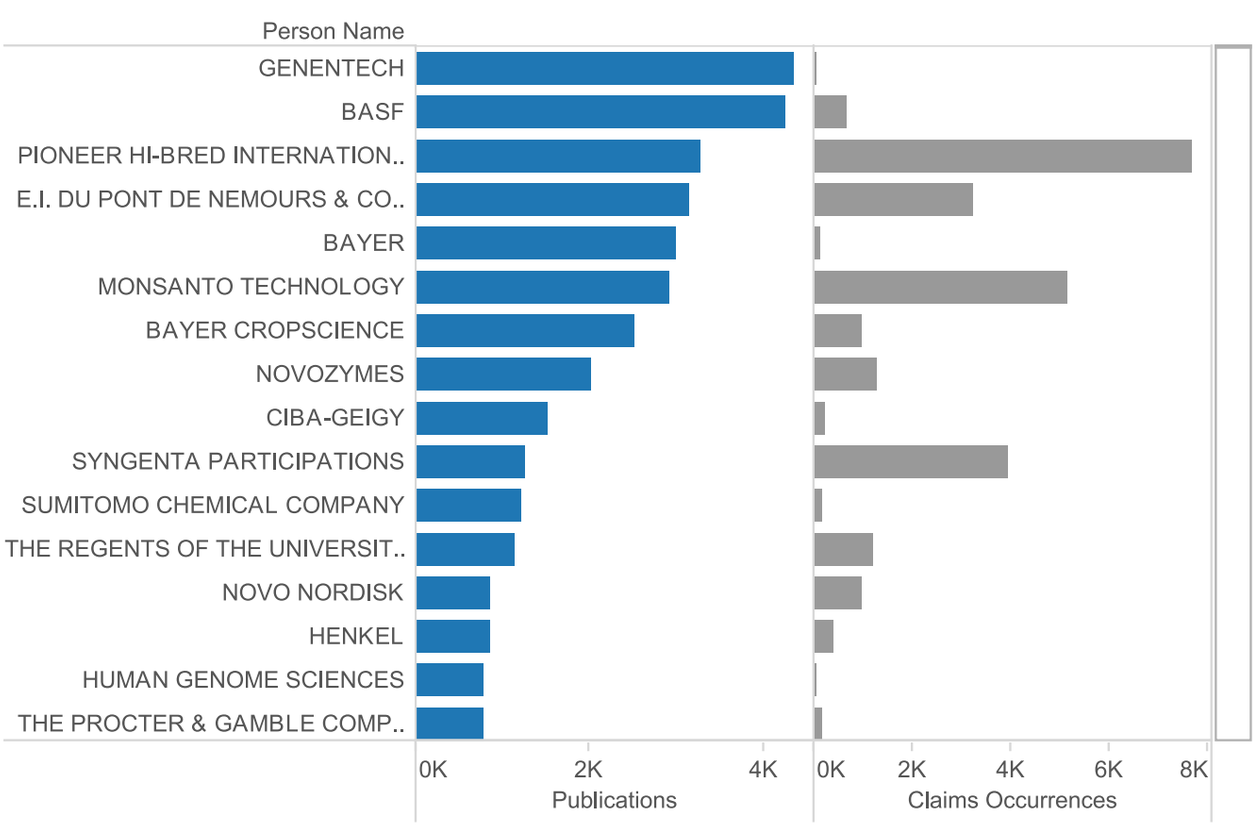
Global Trends



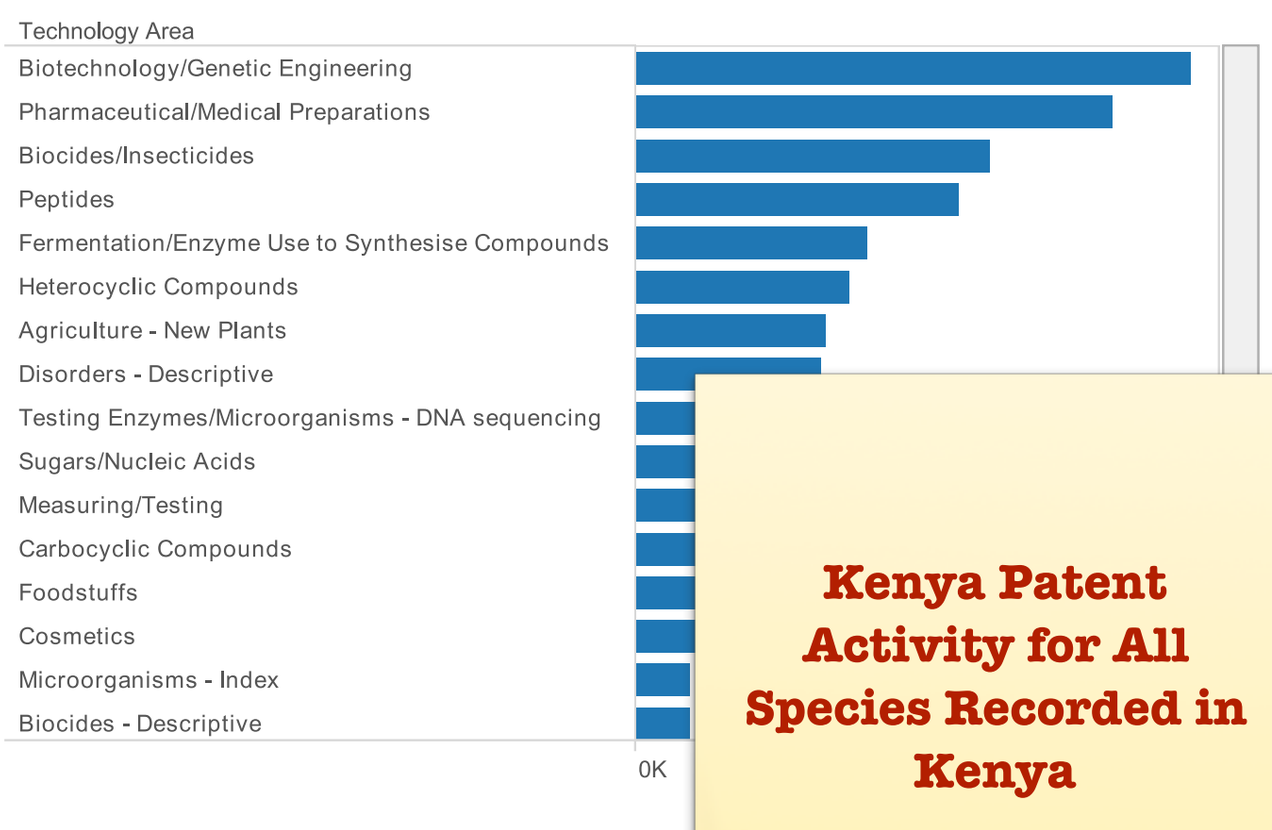
Global Species



Assignees



Global Technology Areas



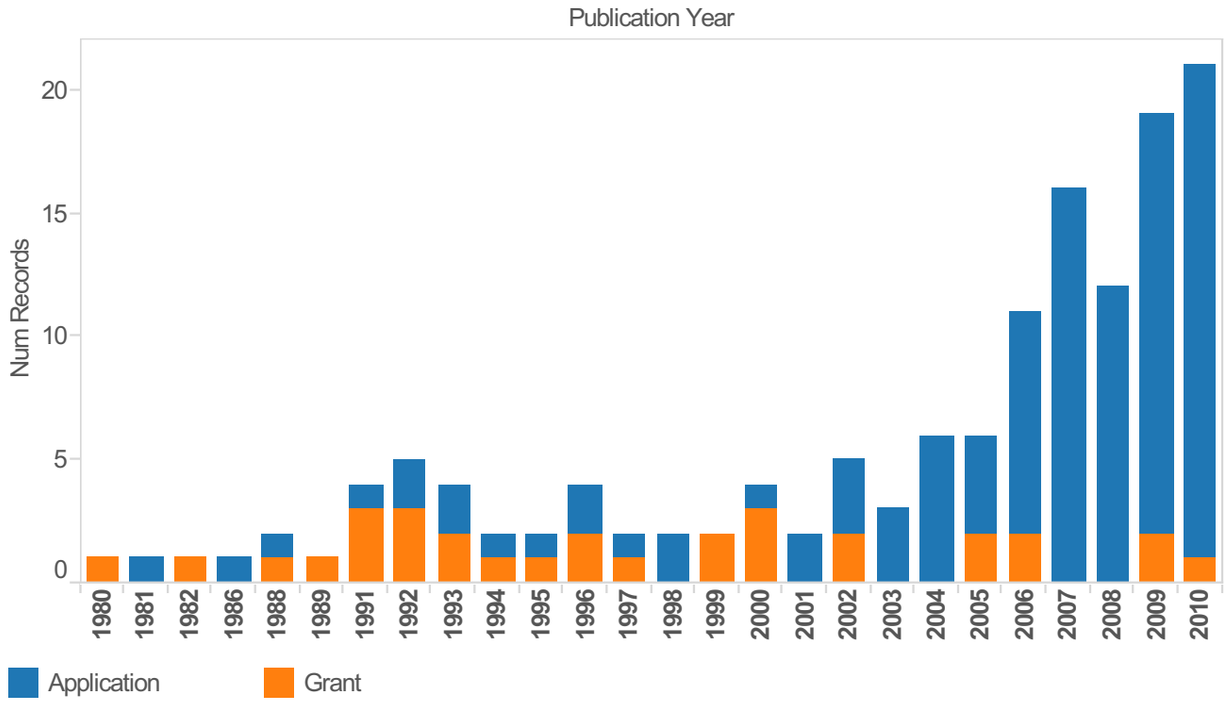
Kenya Patent Activity for All Species Recorded in Kenya

Species Kingdom

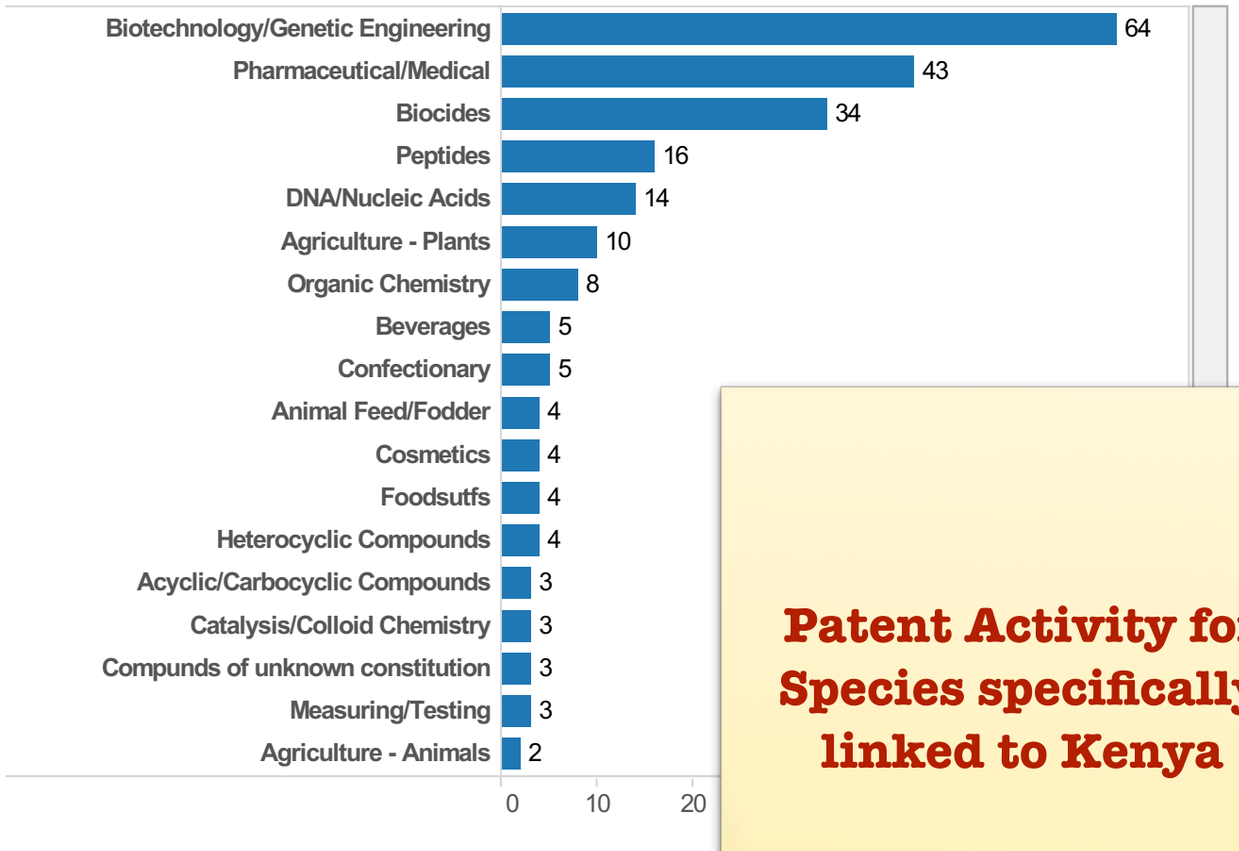
Species	Kingdom	Data Type	Distribution	
Actinomadura kijaniata	bacteria	Origin & Distribution	Uncertain	16
Natrialba magadii	archaea	Distribution	Endemic	14
Natronobacterium magadii	archaea	Distribution	Endemic	14
Glossina brevipalpis	animalia	Distribution	Cosmopolitan	13
Phlebotomus duboscqi	animalia	Distribution	Endemic	9
Ganoderma simulans	fungi	Distribution	Cosmopolitan	6
Ustilago hitchcockiana	fungi	Distribution	Cosmopolitan	6
Acokanthera ouabaio	plantae	Distribution	Cosmopolitan	5
Camellia sinensis	plantae	Origin	Cosmopolitan	4
Impatiens uguenensis	plantae	Distribution	Cosmopolitan	4
Natronococcus occultus	archaea	Distribution	Endemic	4
Senecio keniodendron	plantae	Distribution	Endemic	4
Aloe nyeriensis	plantae	Distribution	Endemic	3
Amblyomma herbraeum	animalia	Distribution	Cosmopolitan	3
Moringa arborea	plantae	Distribution	Cosmopolitan	3
Oreochromis spilurus	animalia	Distribution	Cosmopolitan	3
Spirochaeta africana	bacteria	Distribution	Cosmopolitan	3
Unnamed species	plantae	Origin	Cosmopolitan	3
Afrocaecilia taitana	animalia	Distribution	Endemic	2
Chrysanthemum cinerariaefol..	plantae	Origin	Cosmopolitan	2
Gerbera aberdarica	plantae	Distribution	Cosmopolitan	2
Monadenium rhizophorum	plantae	Distribution	Endemic	2
Papio cynocephalus	animalia	Distribution	Cosmopolitan	2
Sesbania punctata	plantae	Distribution	Cosmopolitan	2
Sphodromantis centralis	animalia	Distribution	Cosmopolitan	2
Streptosporangium carneum	fungi	Origin	Endemic	2
Thermosyntropha lipolytica	bacteria	Distribution	Endemic	2
Anaerobranca bogoriae	bacteria	Distribution	Endemic	1
Ascotricha amphitrica	fungi	Origin	Cosmopolitan	1
Bacillus pumilus	bacteria	Origin	Uncertain	1
Bacillus thuringiensis	bacteria	Origin	Cosmopolitan	1
Beatragus hunteri	animalia	Distribution	Cosmopolitan	1
Dothiorella aromatica	fungi	Distribution	Cosmopolitan	1
Euprosthenops sp	animalia	Origin	Cosmopolitan	1
Glossina mortisans	animala	Origin	Cosmopolitan	1
Halorubrum vacuolatum	archaea	Distribution	Cosmopolitan	1
Justicia regis	plantae	Distribution	Endemic	1

0 5 10 15
Publications

Trends



Technology Areas



Patent Activity for Species specifically linked to Kenya

Conclusions

- A shared system will make life easier for permit authorities and make life easier for applicants.
- A straightforward electronic system will attract researchers put off by the complexities and delays involved with many permit systems.
- The shared system will help with negotiating ABS contracts (MAT) by identifying those areas where agreement can easily be reached and focusing attention on areas where negotiation will be needed.
- Permits are not enforceable in third countries but contracts are. Therefore each permit must be very clearly linked to a contract (legal expertise).
- The system is key to monitoring compliance and showcasing the value of biodiversity and research in Kenya. That is a major value of the system.

What is Needed?

- The shared system needs to work for every authority involved;
- Some authorities may need to take more time to prepare could perhaps join the system later if need be;
- Legal expertise will be critical in defining standard terms and conditions and legal consistency between the terms of permits and ABS contracts (consultancy anticipated);
- For commercial negotiations, hard nosed commercial lawyers in Kenya should be identified;
- Human capacity building, notably in programming and analytics is important and requires discussion;
- The shared system could be an example to many other countries but really requires ownership by the authorities to be successful.

Next steps

- Following this workshop the business requirement document will be finalised and then put before CEOs;
- Subject to approval, a software company will be commissioned to build the system;
- In parallel work is ;
- The system must work for the authorities and so at each stage of development field testing will be needed so that it is fit for purpose;
- Identifying future human resource requirements is an important step.

Thank you