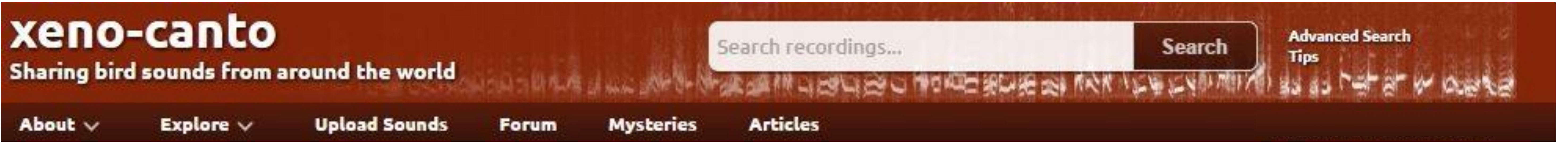




# Citizen Science in Action:

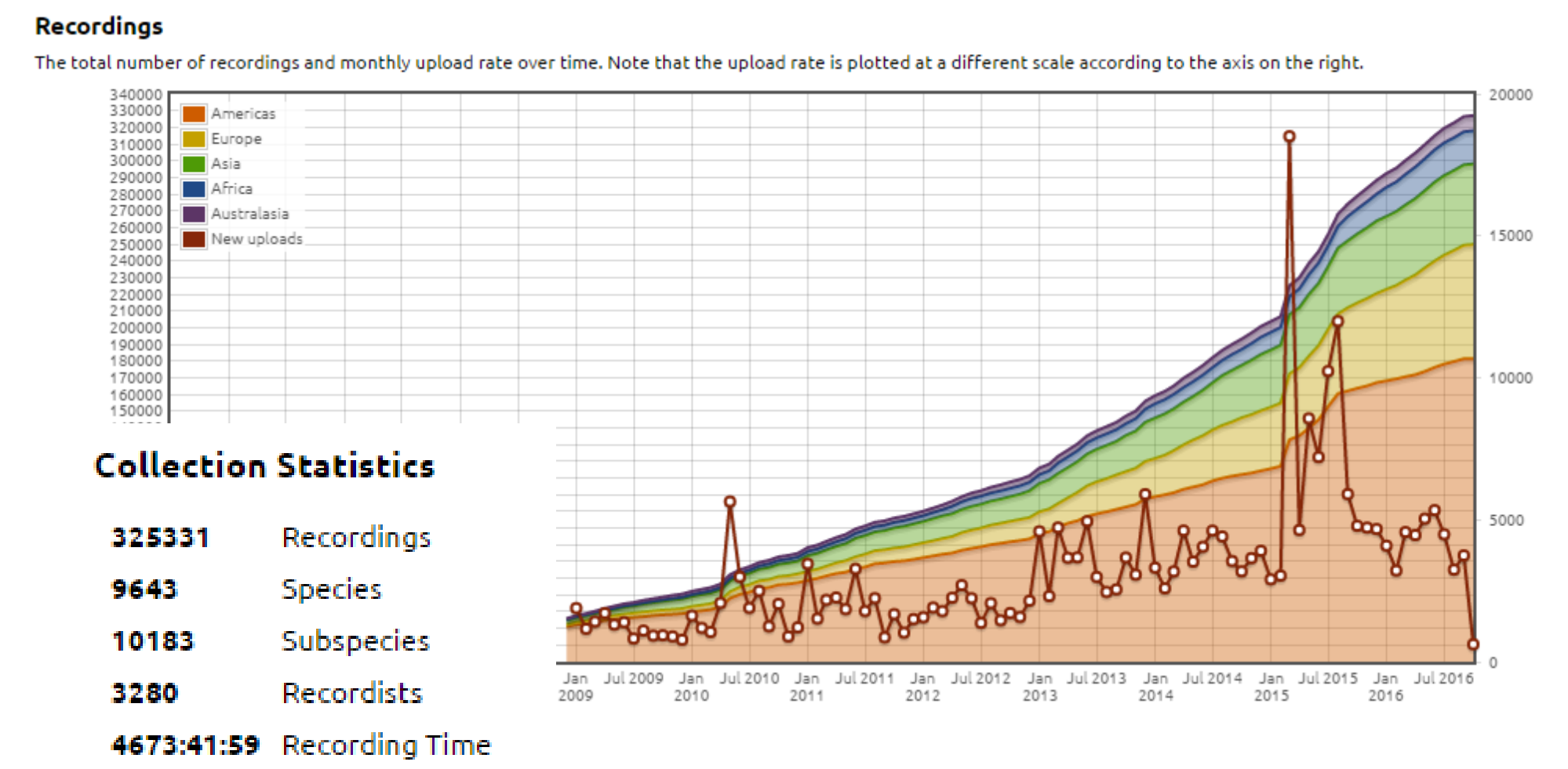
# xeno-canto.org, an open database of African bird vocalisations



Until recently, only a handful of comprehensive African bird sound collections were available, most famously the Claude Chappuis 15 CD box set published in 2001. However, such commercial data sets are often expensive or difficult to find, and typically only contain a few recordings for those species that are covered. Online databases (mainly the Cornell Lab of Ornithology *Macaulay Library* and the Michigan State University's *Avian Vocalizations Center, AVoCet*) mostly have a limited coverage of African species.

An open-access initiative called the **xeno-canto project** was established in 2005 by Xeno-canto Foundation, aiming to popularise bird sound recording worldwide, improve accessibility of bird sounds, and increase knowledge of bird sounds. Initially focused on the Neotropics, it soon expanded to all other world regions, including Africa in 2008.

Xeno-canto is a crowd-sourced, multi-lingual online database ([www.xeno-canto.org](http://www.xeno-canto.org)) where registered users can publish recordings of bird sounds, making them available to the birding and scientific communities.

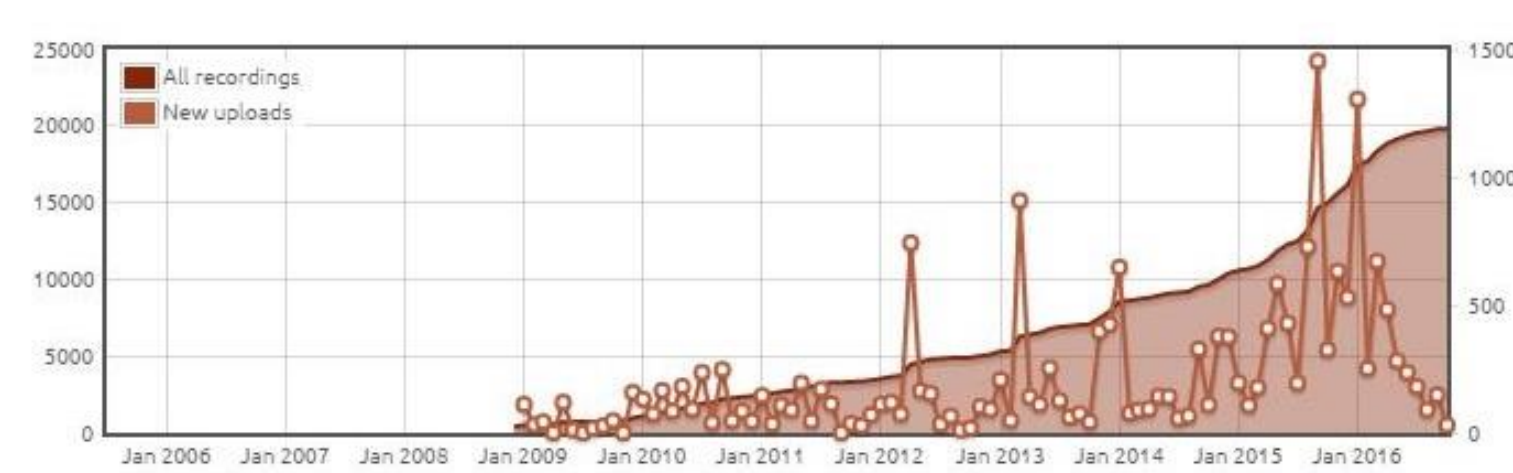


Growth of the xeno-canto collection: number of recordings by region

### Africa: Collection Details

#### Collection Statistics

Recordings: 19813  
Species: 1841  
Recordists: 239  
Locations: 2085  
Countries: 55  
Recording Time: 184:30:55



#### All Species

A Checklist of all species found in Africa

#### New Species

Species recently added to the Africa collection:

- Scarlet-kufted Sunbird
- Molton's Warbler
- Black Tern
- Damara Tern
- Mottled Swift
- Cinnamon-breasted Warbler
- Red-backed Mannikin
- Long-legged Pipit
- Brown Twinspot
- Bob-tailed Weaver
- Bradfield's Hornbill
- Rosy-throated Longclaw

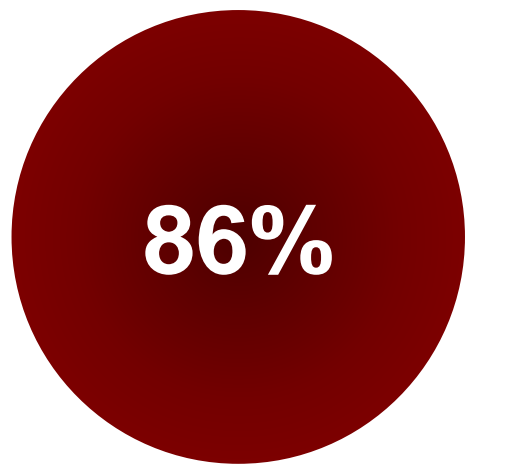
#### Recently Uploaded Recordings

Cal.no.	Species	Recordist	Country
XC337292	Spotless Starling <i>Sturnus unicolor</i>	Bram Piot	Morocco
XC337291	Spotless Starling <i>Sturnus unicolor</i>	Bram Piot	Morocco
XC337234	Buff-spotted Flufftail <i>Sarothra elegans</i>	Vonny Strachan	South Africa
XC337231	Yellow-billed Duck <i>Anas undulata</i>	Lynette Rudman	South Africa
XC337224	Spotted Thick-knee <i>Burhinus capensis</i>	Lynette Rudman	South Africa
XC337223	Spoke-billed Lark <i>Chersomanes albofasciata</i>	Lynette Rudman	South Africa
XC337222	Speckled Pigeon <i>Columba guinea</i>	Lynette Rudman	South Africa
XC337221	Southern Red Bishop <i>Euplectes orix</i>	Lynette Rudman	South Africa
XC337043	Lesser Honeyguide <i>Indicator minor</i>	Lynette Rudman	South Africa
XC337027	White-browed Sparrow-Weaver <i>Plocepasser mahali</i>	Craig Robertson	Kenya

Recordings are published with standardized metadata, including recording date and time, location, sound type, subspecies (when applicable), background species and additional comments. With the exception of highly sensitive species, all recordings and sonograms can be downloaded freely by registered users; identification challenges and "mystery sounds" are discussed through xeno-canto's forum.

As of early October 2016, the database contained nearly 20,000 recordings from Africa, covering 1,841 species representing approximately 184 hours of bird vocalisations from across the continent. New species are added to the collection on a regular basis.

Thanks to its important community of contributors, there are now recordings from more than 2000 locations from throughout the continent, with almost all African countries and territories represented in the collection.



Proportion of African species covered by at least one recording on xeno-canto

Seven countries contain more than 1,000 recordings each, representing 70% of all sounds recorded on the continent: South Africa, Ethiopia, Uganda, Madagascar, Kenya, Tanzania, and Cameroon. In contrast, Angola, Chad, Central African Republic, Eritrea, Libya, Niger and Sudan are the only countries without any recordings thus far.

An ever-growing number of African species are represented by dozens of recordings, including a wide range of song and call types. Many of the most frequently recorded species are those that are amongst the most widespread and most vocal song birds: Grey-backed Camaroptera *Camaroptera brevicaudata*, White-browed Scrub Robin *Cercotrichas leucophrys*, White-browed Robin-Chat *Cossypha heuglini*, Little Greenbul *Eurillas virens*, Dark-capped and Common Bulbuls *Pycnonotus tricolor* and *P. barbatus*, Rattling Cisticola *Cisticola chiniana*, Tawny-flanked Prinia *Prinia subflava*, etc. The collection includes several rare and little-known taxa, including many of the Albertine Rift and Horn of Africa endemics.

Gaps in geographic and species coverage primarily affect forest species of Central Africa and range-restricted species and subspecies from parts of West Africa.

#### Country Statistics

Country	Recordings	Species	Recordists	Recording Time
South Africa	3937	518	72	33:43:59
Ethiopia	2369	453	22	20:01:32
Uganda	1960	392	28	20:34:05
Madagascar	1819	146	25	20:00:15
Kenya	1512	426	32	12:16:34
Tanzania	1184	334	26	10:28:59
Cameroon	1004	258	14	9:01:41
Tunisia	728	121	2	9:31:42
Zambia	696	211	12	6:29:33
Ghana	589	231	18	6:24:52
Morocco	488	131	34	4:16:08
Senegal	449	147	6	4:37:24
Malawi	308	131	8	3:02:04
Ivory Coast	300	145	2	2:06:20
Rwanda	239	133	9	1:20:29
Namibia	227	135	14	1:23:06
Mauritius	183	35	8	2:35:45
France	158	24	11	1:36:22
Zimbabwe	155	86	13	1:20:51
Botswana	139	79	14	1:12:21
Burkina Faso	117	70	2	52:43
Liberia	114	61	2	1:17:11
Equatorial Guinea	100	61	1	1:03:17
Mozambique	99	65	8	1:01:08
Congo (Democratic Republic)	93	60	3	58:23
Gambia	88	55	5	37:34
Comoros	79	34	5	34:11
Somalia	68	42	2	26:53
Sao Tome	61	33	4	35:09
Mali	54	35	1	28:06

#### Common Species

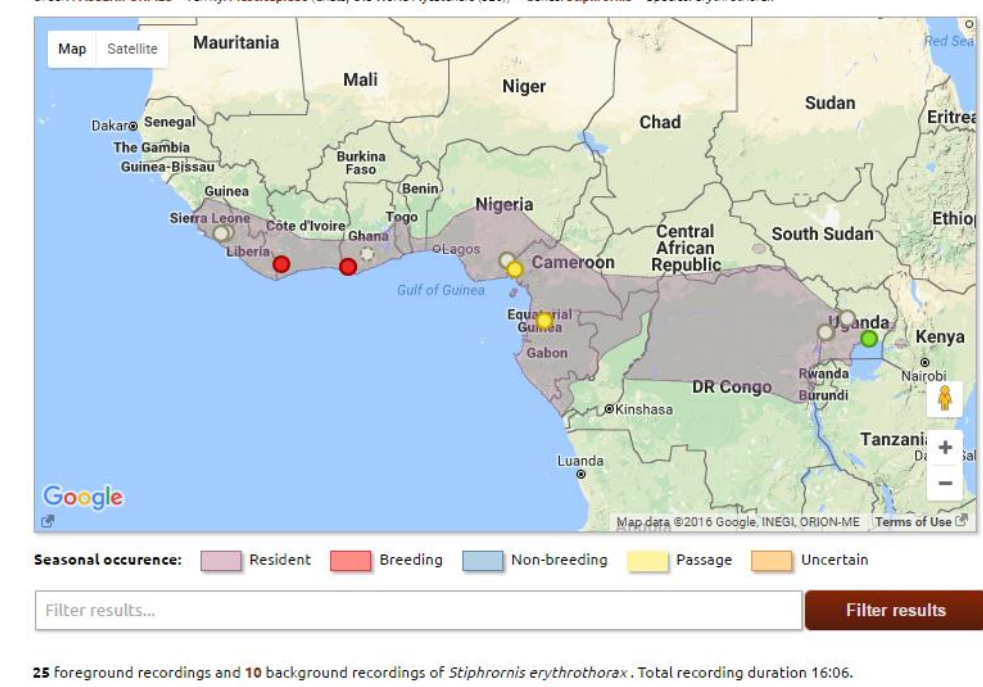
Species most-frequently recorded in the Africa collection:

- 136 Grey-backed Camaroptera
- 119 White-browed Scrub Robin
- 115 White-browed Robin-Chat
- 103 Little Greenbul
- 99 Dark-capped Bulbul
- 99 Rattling Cisticola
- 95 Tawny-flanked Prinia
- 90 Common Bulbul
- 87 Sombre Greenbul
- 87 Tropical Bobwhit
- 83 Red-faced Cisticola
- 76 Black-backed Puffback
- 75 Yellow-whiskered Greenbul
- 75 Ring-necked Dove
- 75 Common Chaffinch
- 70 Evergreen Forest Warbler
- 70 Black-crowned Tchagra
- 70 Olive Sunbird
- 69 African Blue Tit
- 68 African Paradise Flycatcher
- 67 Black-headed Oriole
- 66 Pied Crow
- 65 Orange-breasted Bushshrike
- 63 Green-backed Camaroptera
- 63 Red-chested Cuckoo
- 60 Cape Robin-Chat
- 58 Fork-tailed Drongo
- 55 African Emerald Cuckoo
- 54 Yellow-rumped Tinkerbird
- 53 Rüppell's Robin-Chat

#### White-browed Scrub Robin - *Cercotrichas leucophrys* (Vieillot, 1817)



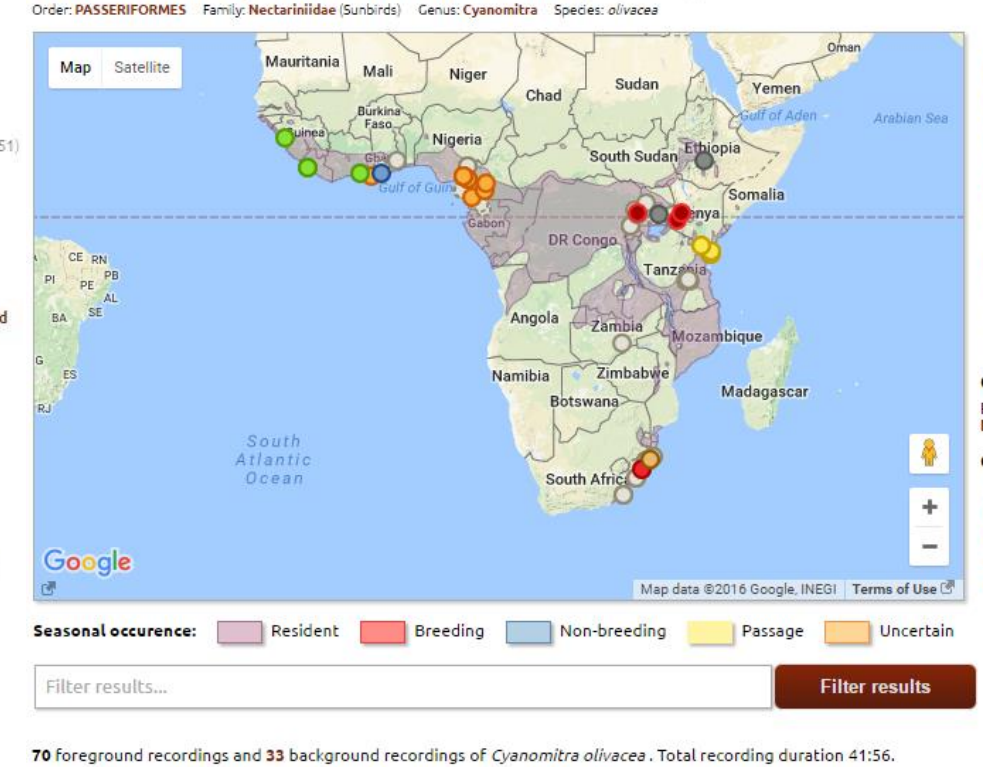
#### Forest Robin - *Stiphodon erythrorhax* - Hartlaub, 1855



#### Yellow-rumped Tinkerbird - *Pogonulus bilineatus* (Sundevall, 1850)



#### Olive Sunbird - *Cyanoditta olivacea* (Smith, A, 1840)



Sample species maps

This unprecedented data set is an invaluable resource for researchers and birders alike, in particular for bio-acoustical and taxonomical research or as reference material for identification. The collection greatly contributes to our knowledge of vocalisations of both little-known and widespread species, be it in terms of dialects or repertoire (vocabulary), and may eventually lead to advances in automated sound recognition.

Vocal differentiation is particularly important in recent taxonomic changes, e.g. in the recently "split" European Pied and Atlas Pied Flycatchers *Ficedula hypoleuca* and *F. speculigera*, Western Subalpine and Moltoni's Warblers *Sylvia inornata* and *S. subalpina*, and will no doubt continue to remain an important factor in future potential splits of taxa that are good candidates for elevation to species rank, e.g. highland Little Rush Warblers *Bradypterus baboecala*.

In addition, the collection serves as a repository of valuable reference data that would previously have gone unpublished and would remain inaccessible to the scientific and birding communities. Among others, it includes recordings of a number of first country records, for example Eurasian Turtle-Dove *Streptopelia decaocto* in Senegal, Cabanis's Bunting *Emberiza cabanisi* in Guinea-Bissau, and Western Citril *Crithagra frontalis* in Kenya.

Ornithologists and birders are encouraged to publish their sound recordings on xeno-canto, thus contributing to this invaluable continent-wide resource.