

A PRESENTATION FROM

DATA DOZEN

a visual analytics studio

ERIN WALDRON FROM DATA DOZEN

DATA VISUALIZATION 101

WHAT IT IS, WHAT IT'S NOT, AND WHAT YOU CAN DO WITH DATA VISUALIZATION



HELLO!

I'M ERIN WALDRON, OWNER OF DATA DOZEN



DATA DOZEN
a visual analytics studio

HOME

DATA VISUALIZATION TRAINING

PROJECT CONSULTING

TABLEAU TRAINING

CONNECT

LET'S VISUALIZE YOUR DATA

INSPIRING SPEAKER · DATA VISUALIZATION SPECIALIST · TABLEAU EXPERT



Syracuse

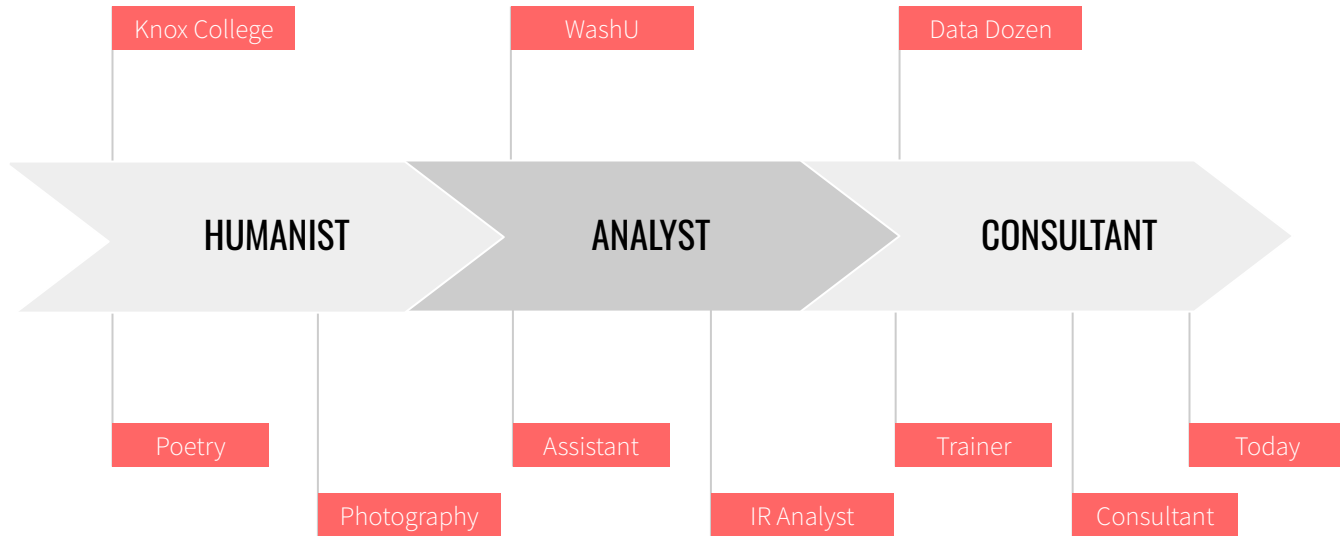


Stanford
University



DATA VISUALIZATION 101: WHAT IT IS, WHAT IT'S NOT,
AND WHAT YOU CAN DO WITH DATA VISUALIZATION

ERIN WALDRON
www.datadozen.com



MY CAREER PATH

MORE IMPORTANTLY

Who are you, and what is one thing
you're hoping to **learn** during this series?



WORKSHOP ARC

Data visualization sits at the intersection of math and art.



MORNING



DATAVIZ 101

what it is, what it's
not, and what you
can do with data
visualization



DATA DESIGN CHECKLIST

16 steps to create
beautiful, engaging
visualizations and
dashboards

AFTERNOON



EFFECTIVE DATA COMMUNICATION

the 5 most common
mistakes we make
when communicating
with data



COMMUNICATION TOOLKIT

building a
successful bridge
between the data
and the audience

TIME

Each session runs
approximately 90
minutes.

PRESENTATIONS

Session 1 and 3 are
primarily content
presentation style.

ACTIVITIES

Session 2 is Aminad
data. Pick a project
for Session 4!

HERE'S WHAT WE'LL DO TOGETHER

WHAT IT IS

Data visualization brings data to **life**.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
	Map title	Common name	Common name	Family	Genus	Inches	Measure	Name	Number of Rec	Order	Population trend	Red List status	Red List status	Site	Size	Species ID	Species	Title	X	Height	Width	X Ctr	Y Ctr	Y						
1	Western Gorilla	Western Gorilla	Western Gorilla	HOMINIDAE	Gorilla	60	height	Western-gorilla	1	PRIMATES	decreasing	Critically Endan	CR	phylopic.org	121	9404	gorilla	Western Gorilla	342	104	121	402.5	1187							
2	Aders' Duiker	Aders' Duiker	Aders' Duiker	BOVIDAE	Cephalophus	12	height at shoul	Aders'-Duiker_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	47	4137	adersi	Aders' Duiker	1550	39	47	1573.5	1042.5							
3	Hirola Range	Hirola	Hirola, Hunter's	BOVIDAE	Beatragus	39	height at shoul	Hirola_--Beatra	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	161	6234	hunteri	Hirola Beatrag	1633	159	161	1713.5	501.5							
4	Addax Range	Addax	Addax	BOVIDAE	Addax	41	height at shoul	Addax_--Addax	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	167	512	nasomaculatus	Addax Addax	1598	152	167	1681.5	652							
5	Dama Gazelle	Dama Gazelle	Dama Gazelle, /	BOVIDAE	Nanger	43	height at shoul	Dama-Gazelle_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	185	8968	dama	Dama-Gazelle	1291	158	185	1390	931							
6	African Wild As	African Wild As	African Wild As	EQUIDAE	Equus	43	height at shoul	African-Wild-As	1	PERISSODACTY	decreasing	Critically Endan	CR	http://www.pla	188	7949	africanus	African Wild As	762	145	188	856	346.5							
7	Pennant's Red (Pennant's Red)	Pennant's Red (Pennant's Red)	Pennant's Red (	CERCOPITHECI	Procolobus	28	length w/out	ta Pennant's-Red-	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	117	39996	pennantli	Pennant's Red (	847	62	117	905.5	1288							
8	Kipunji Range	Kipunji	Kipunji	CERCOPITHECI	Rungwecebus	35	length w/out	ta Kipunji_--Rungw	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	141	136791	kipunji	Kipunji Rungw	1894	94	141	1964.5	1405							
9	Bonobo Range	Bonobo	Bonobo, Pygmy	HOMINIDAE	Pan	36	height	Bonobo_--Pan-i	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	73	15932	paniscus	Bonobo Pan p	469	73	69	503.5	1171.5							
10	Eastern Gorilla	Eastern Gorilla	Eastern Gorilla,	HOMINIDAE	Gorilla	69	height	Eastern-Gorilla-	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	130	39994	beringei	Eastern Gorilla	211	109	130	276	1189.5							
11	Chimpanzee Ra	Chimpanzee	Chimpanzee, R	HOMINIDAE	Pan	40	height	Chimpanzee--f	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	85	15933	troglydotes	Chimpanzee f	113	74	85	155.5	1172							
12	Ethiopian Wolf	Ethiopian Wolf	Ethiopian Wolf,	CANIDAE	Canis	24	height at shoul	Ethiopian-Wolf-	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	135	3748	simensis	Ethiopian Wolf	1564	82	135	1631.5	1484							
13	African Wild Dc	African Wild Dc	African Wild Dc	CANIDAE	Lycan	30	height at shoul	African-Wild-Dc	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	134	12436	pictus	African Wild Dc	1711	92	134	1778	1489							
14	Slender-horned	Slender-horned	Slender-horned	BOVIDAE	Gazella	26	height at shoul	Slender-horned	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	113	8972	leptoceros	Slender-horned	2101	113	99	2150.5	942.5							
15	Jentink's Duiker	Jentink's Duiker	Jentink's Duiker	BOVIDAE	Cephalophus	31	height at shoul	Jentink's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4140	jentinki	Jentink's Duiker	1068	100	112	1124	1073							
16	Nile Lechwe Ra	Nile Lechwe	Nile Lechwe	BOVIDAE	Kobus	37	height at shoul	Nile-Lechwe--K	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	168	11034	megaceros	Nile Lechwe K	177	132	168	261	717							
17	Mountain Nyali	Mountain Nyali	Mountain Nyali,	BOVIDAE	Tragelaphus	50	height at shoul	Mountain-Nyali-	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	195	22046	buxtoni	Mountain Nyali	2381	195	191	2476.5	868.5							
18	Speke's Gazelle	Speke's Gazelle	Speke's Gazelle	BOVIDAE	Gazella	24	height at shoul	Speke's-Gazelle	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	120	8975	spelei	Speke's Gazelle	1882	116	120	1942	944							
19	Abbott's Duiker	Abbott's Duiker	Abbott's Duiker	BOVIDAE	Cephalophus	26	height at shoul	Abbott's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4151	spadix	Abbott's Duiker	1240	89	112	1296	1067.5							
20	Okapi Range	Okapi	Okapi	GIRAFFIDAE	Okapia	63	height at shoul	Okapi_--Okapia	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	236	15188	johnstoni	Okapi Okapia	2087	217	236	2205	1131.5							
21	Pygmy Hippoc	Pygmy Hippoc	Pygmy Hippoc	HIPPOPOTAMIC	Choropsis	31	height at shoul	Pygmy-Hippoc	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	190	10032	liberiensis	Pygmy Hippoc	2067	95	190	2162	1432.5							
22	Tana River Cres	Tana River Cres	Tana River Cres	CERCOPITHECI	Cercopithec	26	length w/out	ta Tana-River-Cres	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	75	4200	galentius	Tana River Cres	1213	75	71	1248.5	1293.5							
23	Sanje Mangabe	Sanje Mangabe	Sanje Mangabe	CERCOPITHECI	Cercocebus	26	length w/out	ta Sanje-Mangabe	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	91	4203	sanjei	Sanje Mangabe	1122	74	91	1167.5	1303							
24	Spotted Hyaen	Spotted Hyaen	Spotted Hyaen	HYAENIDAE	Crocuta	36	height	Spotted-Hyaeni	1	CARNIVORA	decreasing	Least Concern	LC	http://www.pla	142	5674	crocuta	Spotted Hyaen	975	102	142	946	1490							
25	Wild Cat Range	Wild Cat	Wild Cat, Wilde	FELIDAE	Felis	14	height at shoul	Wild-Cat_--Felis	1	CARNIVORA	decreasing	Least Concern	LC	http://www.pla	93	8543	silvestris	Wild Cat Felis	827	40	93	973.5	1570							
26	Ogilby's Duiker	Ogilby's Duiker	Ogilby's Duiker	BOVIDAE	Cephalophus	22	height at shoul	Ogilby's-Duiker	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	105	4148	ogilbyi	Ogilby's Duiker	1890	76	105	1942.5	1061							
27	Natal Red Duik	Natal Red Duik	Natal Red Duik	BOVIDAE	Cephalophus	20	height at shoul	Natal-Red-Duik	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	70	4144	natalensis	Natal Red Duik	1674	63	70	1709	1054.5							
28	Oribi Range	Oribi	Oribi	BOVIDAE	Ourebia	26	height at shoul	Oribi_--Ourebia	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	111	15730	ourebii	Oribi Ourebia	470	89	111	525.5	1067.5							
29	Topi Range	Topi	Topi, Tsessebe,	BOVIDAE	Damaliscus	47	height at shoul	Topi_--Damalisc	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	189	6235	lunatus	Topi Damalisc	1782	176	189	1876.5	348							
30	Waterbuck Ran	Waterbuck	Waterbuck--Kc	BOVIDAE	Kobus	53	height at shoul	Waterbuck--Ko	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	239	11035	ellipsiprymus	Waterbuck Kc	340	239	201	440.5	770.5							
31	African Buffalo	African Buffalo	African Buffalo	BOVIDAE	Syncerus	67	height at shoul	African-Buffalo-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	265	21251	caffer	African Buffalo	2319	184	265	2451.5	352							
32	Maxwell's Duik	Maxwell's Duik	Maxwell's Duik	BOVIDAE	Philantomba	16	height at shoul	Maxwell's-Duik	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	90	4142	maxwellii	Maxwell's Duik	1176	49	90	1221	1047.5							
33	Black-fronted D	Black-fronted D	Black-fronted D	BOVIDAE	Cephalophus	20	height at shoul	Black-fronted-D	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	71	4146	nigrifrons	Black-fronted D	1749	68	71	1784.5	1057							
34	Yellow-backed I	Yellow-backed I	Yellow-backed I	BOVIDAE	Cephalophus	31	height at shoul	Yellow-backed-I	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	120	4150	silvicultor	Yellow-backed I	2032	98	120	2092	1072							
35	Bohor Reedbuck	Bohor Reedbuck	Bohor Reedbuck	BOVIDAE	Redunca	35	height at shoul	Bohor-Reedbuck	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	133	19392	redunda	Bohor Reedbuck	287	133	126	350	938.5							
36	Kob Range	Kob	Kob	BOVIDAE	Kobus	43	height at shoul	Kob_--Kobus-kc	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	176	11036	kob	Kob Kobus ko	138	176	156	216	918							
37	Hartebeest Ran	Hartebeest	Hartebeest, Sw	BOVIDAE	Alcelaphus	57	height at shoul	Hartebeest_--A	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	212	811	buselaphus	Hartebeest Al	1567	206	212	1673	363							
38	Harvey's Duiker	Harvey's Duiker	Harvey's Duiker	BOVIDAE	Cephalophus	16	height at shoul	Harvey's-Duiker	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	70	4154	harveyi	Harvey's Duiker	1828	53	70	1863	1049.5							
39	Sitatunga Rang	Sitatunga	Sitatunga, Mari	BOVIDAE	Tragelaphus	45	height at shoul	Sitatunga--Tra	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	202	22050	spekii	Sitatunga Tra	1797	199	202	1898	808.5							
40	Royal Antelope	Royal Antelope	Royal Antelope	BOVIDAE	Neotragus	10	height at shoul	Royal-Antelope	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	54	14602	pygmaeus	Royal Antelope	442	34	54	469	1040							
41	White-bellied C	White-bellied C	White-bellied C	BOVIDAE	Cephalophus	20	height at shoul	White-bellied-C	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	109	4141	leucogaster	White-bellied C	1356	66	109	1410.5	1055							
42	Black Duiker Ra	Black Duiker	Black Duiker	BOVIDAE	Cephalophus	20	height at shoul	Black-Duiker_--C	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	103	4145	niger	Black Duiker C	1569	64	103	1620.5	1056							
43	Bay Duiker Ran	Bay Duiker	Bay Duiker	BOVIDAE	Cephalophus	22	height at shoul	Bay-Duiker_--Ce	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	91	4139	dorsalis	Bay Duiker Ce	1461	72	91	1506.5	1059							
44	Grant's Gazelle	Grant's Gazelle	Grant's Gazelle	BOVIDAE	Nanger	35	height at shoul	Grant's-Gazelle-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	169	8971	granti	Grant's Gazelle	1715	159	169	1799.5	965.5							
45	Roan Antelope	Roan Antelope	Roan Antelope	BOVIDAE	Hippotragus	63	height at shoul	Roan-Antelope	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	258	10167	equinus	Roan Antelope	2323	234	258	2452	721							
46	Giant Eland Ra	Giant Eland	Giant Eland, W	BOVIDAE	Tragelaphus	69	height at shoul	Giant-Eland_--T	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	330	44172	derbianus	Giant Eland Tr	857	246	330	1022	780							
47	Red-flanked Du	Red-flanked Du	Red-flanked Du	BOVIDAE	Cephalophus	14	height at shoul	Red-flanked-Du	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	73	4149	rufilatus	Red-flanked Du	1024	51	73	1060.5	1048.5							
48	Forest Hog Ran	Forest Hog	Forest Hog, We	SUIDAE	Hylochoerus	40	height at shoul	Forest-Hog_--H	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	184	41769	meinerzhageni	Forest Hog Hy	1771	113	184	1863	1182.5							
49	Red River Hog F	Red River Hog	Red River Hog	SUIDAE	Potamochoerus	30	height at shoul	Red-River-Hog_	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	143	41771	porcus	Red River Hog	1593	83	143	2024.5	1167.5							
50	Water Chevrot	Water Chevrot	Water Chevrot	TRAGULIDAE	Hymoschoerus	14	height at shoul	Water-Chevrot	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	63	10341	aquaticus	Water Chevrot	1714	47	63	1745.5	1148.5							
51	Giraffe Range	Giraffe	Giraffe	GIRAFFIDAE	Giraffa	144	height at shoul	Giraffe_--Giraffi	1	CETARTIODACT	decreasing	Least Concern	LC	phylopic.org	674	9194	camelopardalis	Giraffe Giraffa	2201	674	381	2391.5	1160							
52	Gelada Baboon	Gelada Baboon	Gelada Baboon	CERCOPITHECI	Theropithecus	30	length w/out	ta Gelada-Baboon	1	PRIMATES	decreasing	Least Concern	LC	http://www.bic	124	21744	gelada	Gelada Baboon	570	84	124	632	1172							
53	Grey-cheeked h	Grey-cheeked h	Grey-cheeked h	CERCOPITHECI	Lophocebus	26	length w/out	ta Grey-cheeked-h																						

IMAGINE YOU HAVE TO CREATE THIS DATASET

- ▶ Subject Matter

Animals are mobile, look similar, could be extinct or just scarce

- Taxonomy

Which animals to include, how to categorize them, and how granular to be

- Consistency

Different teams across different regions
spanning multiple years

[illegible]



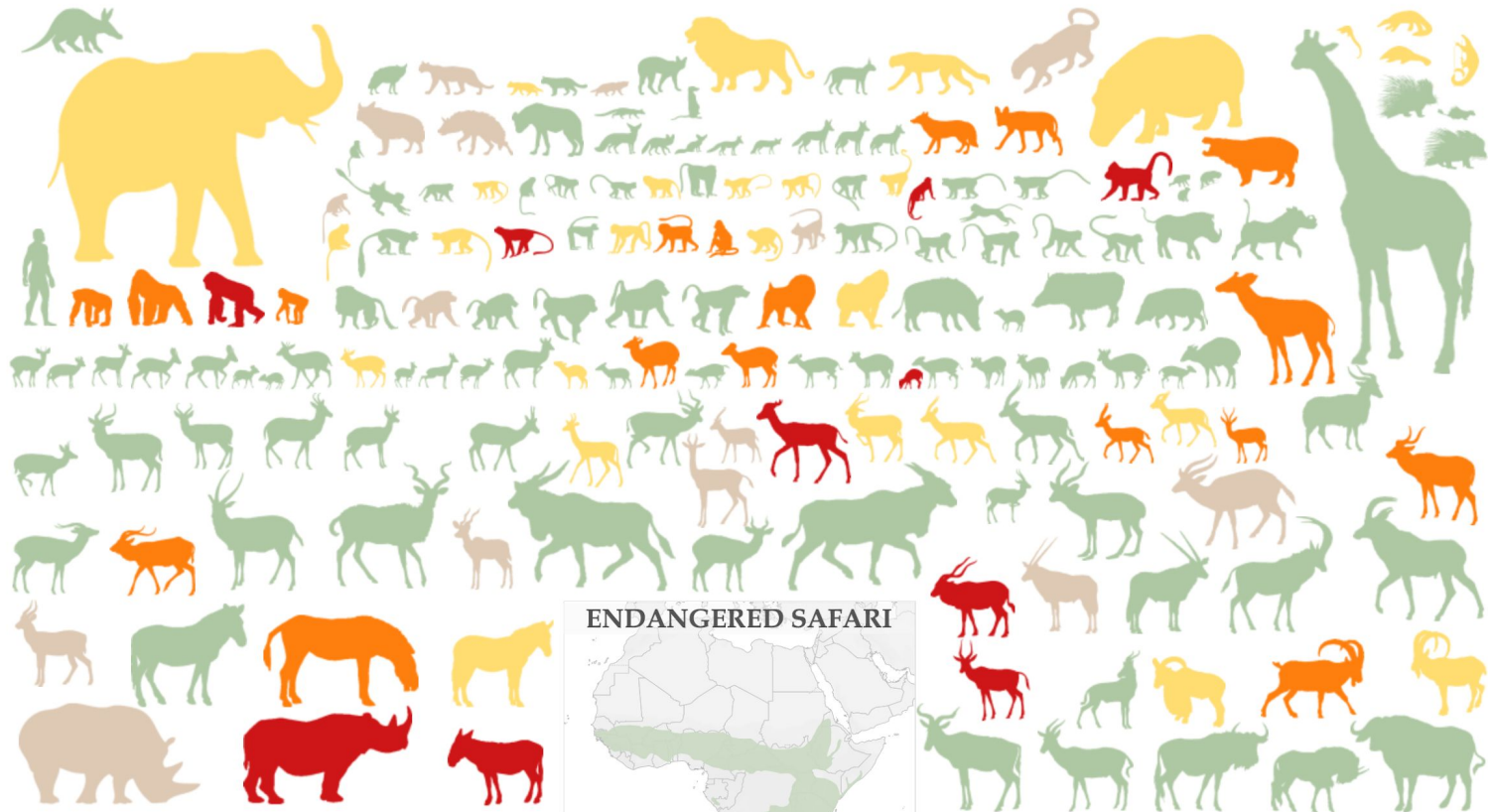
crickets...

THE TRUTH

Most people **don't** read data.

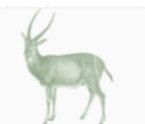


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
	Map title	Common name	Common name	Family	Genus	Inches	Measure	Name	Number of Rec	Order	Population trend	Red List status	Red List status	Site	Size	Species ID	Species	Title	X	Height	Width	X Ctr	Y Ctr	Y						
1	Western Gorilla	Western Gorilla	Western Gorilla	HOMINIDAE	Gorilla	60	height	Western-gorilla	1	PRIMATES	decreasing	Critically Endan	CR	phylopic.org	121	9404	gorilla	Western Gorilla	342	104	121	402.5	1187							
2	Aders' Duiker	Aders' Duiker	Aders' Duiker	BOVIDAE	Cephalophus	12	height at shoul	Aders'-Duiker_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	47	4137	adersi	Aders' Duiker	1550	39	47	1573.5	1042.5							
4	Hirola Range	Hirola	Hirola, Hunter's	BOVIDAE	Beatragus	39	height at shoul	Hirola_--Beatra	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	161	6234	hunteri	Hirola Beatragus	1633	159	161	1713.5	501.5							
5	Addax Range	Addax	Addax	BOVIDAE	Addax	41	height at shoul	Addax_--Addax	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	167	512	nasomaculatus	Addax Addax	1598	152	167	1681.5	652							
6	Dama Gazelle	Dama Gazelle	Dama Gazelle, /	BOVIDAE	Nanger	43	height at shoul	Dama-Gazelle_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	185	8968	dama	Dama Gazelle	1291	158	185	1390	931							
7	African Wild As	African Wild As	African Wild As	EQUIDAE	Equus	43	height at shoul	African-Wild-As	1	PERISSODACTY	decreasing	Critically Endan	CR	http://www.pla	188	7949	africanus	African Wild As	762	145	188	856	346.5							
8	Pennant's Red (Pennant's Red)	Pennant's Red (Pennant's Red)	Pennant's Red (	CERCOPITHECI	Procolobus	28	length w/out	ta Pennant's-Red-	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	117	39996	pennanti	Pennant's Red (	847	62	117	905.5	1288							
9	Kipunji Range	Kipunji	Kipunji	CERCOPITHECI	Rungwecebus	35	length w/out	ta Kipunji_--Rungw	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	141	136791	kipunji	Kipunji Rungwecebus	1894	94	141	1964.5	1405							
10	Bonobo Range	Bonobo	Bonobo, Pygmy	HOMINIDAE	Pan	36	height	Bonobo_--Pan-i	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	73	15932	paniscus	Bonobo Pan paniscus	469	73	69	503.5	1171.5							
11	Eastern Gorilla	Eastern Gorilla	Eastern Gorilla,	HOMINIDAE	Gorilla	69	height	Eastern-Gorilla-	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	130	39994	beringei	Eastern Gorilla	211	109	130	276	1189.5							
12	Chimpanzee Ra	Chimpanzee	Chimpanzee, R	HOMINIDAE	Pan	40	height	Chimpanzee--f	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	85	15933	troglydotes	Chimpanzee f	113	74	85	155.5	1172							
13	Ethiopian Wolf	Ethiopian Wolf	Ethiopian Wolf,	CANIDAE	Canis	24	height at shoul	Ethiopian-Wolf-	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	135	3748	simensis	Ethiopian Wolf	1564	82	135	1631.5	1484							
14	African Wild Dc	African Wild Dc	African Wild Dc	CANIDAE	Lyaon	30	height at shoul	African-Wild-Dc	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	134	12436	pictus	African Wild Dc	1711	92	134	1778	1489							
15	Slender-horned	Slender-horned	Slender-horned	BOVIDAE	Gazella	26	height at shoul	Slender-horned	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	113	8972	leptoceros	Slender-horned	2101	113	99	2150.5	942.5							
16	Jentink's Duiker	Jentink's Duiker	Jentink's Duiker	BOVIDAE	Cephalophus	31	height at shoul	Jentink's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4140	jentinki	Jentink's Duiker	1068	100	112	1124	1073							
17	Nile Lechwe Ra	Nile Lechwe	Nile Lechwe	BOVIDAE	Kobus	37	height at shoul	Nile-Lechwe--K	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	168	11034	megaceros	Nile Lechwe K	177	132	168	261	717							
18	Mountain Nyali	Mountain Nyali	Mountain Nyali,	BOVIDAE	Tragelaphus	50	height at shoul	Mountain-Nyali-	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	195	22046	buxtoni	Mountain Nyali	2381	195	191	2476.5	868.5							
19	Speke's Gazelle	Speke's Gazelle	Speke's Gazelle	BOVIDAE	Gazella	24	height at shoul	Speke's-Gazelle	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	120	8975	spelei	Speke's Gazelle	1882	116	120	1942	944							
20	Abbott's Duiker	Abbott's Duiker	Abbott's Duiker	BOVIDAE	Cephalophus	26	height at shoul	Abbott's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4151	spadix	Abbott's Duiker	1240	89	112	1296	1067.5							
21	Okapi Range	Okapi	Okapi	GIRAFFIDAE	Okapia	63	height at shoul	Okapi_--Okapia	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	236	15188	johnstoni	Okapi Okapia	2087	217	236	2205	1131.5							
22	Pygmy Hippoc	Pygmy Hippoc	Pygmy Hippoc	HIPPOPOTAMIC	Choeoropsis	31	height at shoul	Pygmy-Hippoc	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	190	10032	liberiensis	Pygmy Hippoc	2067	95	190	2162	1432.5							
23	Tana River Cres	Tana River Cres	Tana River Cres	CERCOPITHECI	Cercocetus	26	length w/out	ta Tana-River-Cres	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	75	4200	galentius	Tana River Cres	1213	75	71	1248.5	1293.5							
24	Sanje Mangabe	Sanje Mangabe	Sanje Mangabe	CERCOPITHECI	Cercocebus	26	length w/out	ta Sanje-Mangabe	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	91	4203	sanjei	Sanje Mangabe	1122	74	91	1167.5	1303							
25	Spotted Hyaen	Spotted Hyaen	Spotted Hyaen	HYAENIDAE	Crocuta	36	height	Spotted-Hyaeni	1	CARNIVORA	decreasing	Least Concerne	LC	http://www.pla	142	5674	crocuta	Spotted Hyaen	975	102	142	946	1490							
26	Wild Cat Range	Wild Cat	Wild Cat, Wilde	FELIDAE	Felis	14	height at shoul	Wild-Cat_--Felis	1	CARNIVORA	decreasing	Least Concerne	LC	http://www.pla	93	8543	silvestris	Wild Cat Felis	827	40	93	973.5	1570							
27	Ogilby's Duiker	Ogilby's Duiker	Ogilby's Duiker	BOVIDAE	Cephalophus	22	height at shoul	Ogilby's-Duiker	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	105	4148	ogilbyi	Ogilby's Duiker	1890	76	105	1942.5	1061							
28	Natal Red Duik	Natal Red Duik	Natal Red Duik	BOVIDAE	Cephalophus	20	height at shoul	Natal-Red-Duik	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	70	4144	natalensis	Natal Red Duik	1674	63	70	1709	1054.5							
29	Oribi Range	Oribi	Oribi	BOVIDAE	Ourebia	26	height at shoul	Oribi_--Ourebia	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	111	15730	ourebii	Oribi Ourebia	470	89	111	525.5	1067.5							
30	Topi Range	Topi	Topi, Tsessebe,	BOVIDAE	Damaliscus	47	height at shoul	Topi_--Damalisc	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	189	6235	lunatus	Topi Damaliscus	1782	176	189	1876.5	348							
31	Waterbuck Ran	Waterbuck	Waterbuck--Kc	BOVIDAE	Kobus	53	height at shoul	Waterbuck--Ko	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	239	11035	ellipsiprymus	Waterbuck Kc	340	239	201	440.5	770.5							
32	African Buffalo	African Buffalo	African Buffalo	BOVIDAE	Syncerus	67	height at shoul	African-Buffalo-	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	265	21251	caffer	African Buffalo	2319	184	265	2451.5	352							
33	Maxwell's Duik	Maxwell's Duik	Maxwell's Duik	BOVIDAE	Philantomba	16	height at shoul	Maxwell's-Duik	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	90	4142	maxwellii	Maxwell's Duik	1176	49	90	1221	1047.5							
34	Black-fronted D	Black-fronted D	Black-fronted D	BOVIDAE	Cephalophus	20	height at shoul	Black-fronted-D	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	71	4146	nigrifrons	Black-fronted D	1749	68	71	1784.5	1057							
35	Yellow-backed I	Yellow-backed I	Yellow-backed I	BOVIDAE	Cephalophus	31	height at shoul	Yellow-backed-I	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	120	4150	silvicultor	Yellow-backed I	2032	98	120	2092	1072							
36	Bohor Reedbuck	Bohor Reedbuck	Bohor Reedbuck	BOVIDAE	Redunca	35	height at shoul	Bohor-Reedbuck	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	133	19392	redunda	Bohor Reedbuck	287	133	126	350	938.5							
37	Kob Range	Kob	Kob	BOVIDAE	Kobus	43	height at shoul	Kob_--Kobus-kc	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	176	11036	kob	Kob Kobus kob	138	176	156	216	918							
38	Hartebeest Ran	Hartebeest	Hartebeest, Sw	BOVIDAE	Alcelaphus	57	height at shoul	Hartebeest_--A	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	212	811	buselaphus	Hartebeest Al	1567	206	212	1673	363							
39	Harvey's Duiker	Harvey's Duiker	Harvey's Duiker	BOVIDAE	Cephalophus	16	height at shoul	Harvey's-Duiker	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	70	4154	harveyi	Harvey's Duiker	1828	53	70	1863	1049.5							
40	Sitatunga Rang	Sitatunga	Sitatunga, Mari	BOVIDAE	Tragelaphus	45	height at shoul	Sitatunga--Tra	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	202	22050	spekii	Sitatunga Tra	1797	199	202	1898	808.5							
41	Royal Antelope	Royal Antelope	Royal Antelope	BOVIDAE	Neotragus	10	height at shoul	Royal-Antelope	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	54	14602	pygmaeus	Royal Antelope	442	34	54	469	1040							
42	White-bellied C	White-bellied C	White-bellied C	BOVIDAE	Cephalophus	20	height at shoul	White-bellied-C	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	109	4141	leucogaster	White-bellied C	1356	66	109	1410.5	1055							
43	Black Duiker Ra	Black Duiker	Black Duiker	BOVIDAE	Cephalophus	20	height at shoul	Black-Duiker--C	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	103	4145	niger	Black Duiker C	1569	64	103	1620.5	1056							
44	Bay Duiker Ran	Bay Duiker	Bay Duiker	BOVIDAE	Cephalophus	22	height at shoul	Bay-Duiker--Ce	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	91	4139	dorsalis	Bay Duiker Ce	1461	72	91	1506.5	1059							
45	Grant's Gazelle	Grant's Gazelle	Grant's Gazelle	BOVIDAE	Nanger	35	height at shoul	Grant's-Gazelle-	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	169	8971	granti	Grant's Gazelle	1715	159	169	1799.5	965.5							
46	Roan Antelope	Roan Antelope	Roan Antelope	BOVIDAE	Hippotragus	63	height at shoul	Roan-Antelope	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	258	10167	equinus	Roan Antelope	2323	234	258	2452	721							
47	Giant Eland Ra	Giant Eland	Giant Eland, W	BOVIDAE	Tragelaphus	69	height at shoul	Giant-Eland_--T	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	330	44172	derbianus	Giant Eland Tr	857	246	330	1022	780							
48	Red-flanked Du	Red-flanked Du	Red-flanked Du	BOVIDAE	Cephalophus	14	height at shoul	Red-flanked-Du	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	73	4149	rufilatus	Red-flanked Du	1024	51	73	1060.5	1048.5							
49	Forest Hog Ran	Forest Hog	Forest Hog, We	SUIDAE	Hylochoerus	40	height at shoul	Forest-Hog_--H	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	184	41769	meinerzhageni	Forest Hog Hy	1771	113	184	1863	1182.5							
50	Red River Hog	R Red River Hog	Red River Hog	SUIDAE	Potamochoerus	30	height at shoul	Red-River-Hog_	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	143	41771	porcus	Red River Hog	1953	83	143	2024.5	1167.5							
51	Water Chevrot	Water Chevrot	Water Chevrot	TRAGULIDAE	Hymoschoerus	14	height at shoul	Water-Chevrot	1	CETARTIODACT	decreasing	Least Concerne	LC	http://www.pla	63	10341	aquaticus	Water Chevrot	1714	47	63	1745.5	1148.5							
52	Giraffe Range	Giraffe	Giraffe	GIRAFFIDAE	Giraffa	144	height at shoul	Giraffe_--Giraffi	1	CETARTIODACT	decreasing	Least Concerne	LC	phylopic.org	674	9194	camelopardalis	Giraffe Giraffa	2201	674	381	2391.5	1160							
53	Gelada Baboon	Gelada Baboon	Gelada Baboon	CERCOPITHECI	Therop																									



data from v2014.3
**The IUCN Red List
 of Threatened Species**
www.iucnredlist.org

Waterbuck
Kobus ellipsiprymnus
 Population: decreasing
 Status: Least Concern



Animal Range

■ Critically Endangered
 ■ Endangered
 ■ Vulnerable
 ■ Near Threatened
 ■ Least Concern

Population
 DECREASING  Stable or INCREASING



data from v2014.3
**The IUCN Red List
 of Threatened Species**
www.iucnredlist.org

©2015 RJ Andrews. All rights reserved. See more at InfoWeTrust.com

Lion

Panthera leo

Population: decreasing
 Status: Vulnerable



- Critically Endangered
- Endangered
- Vulnerable
- Near Threatened
- Least Concern

Population

DECREASING STABLE or INCREASING

INFO WE TRUST



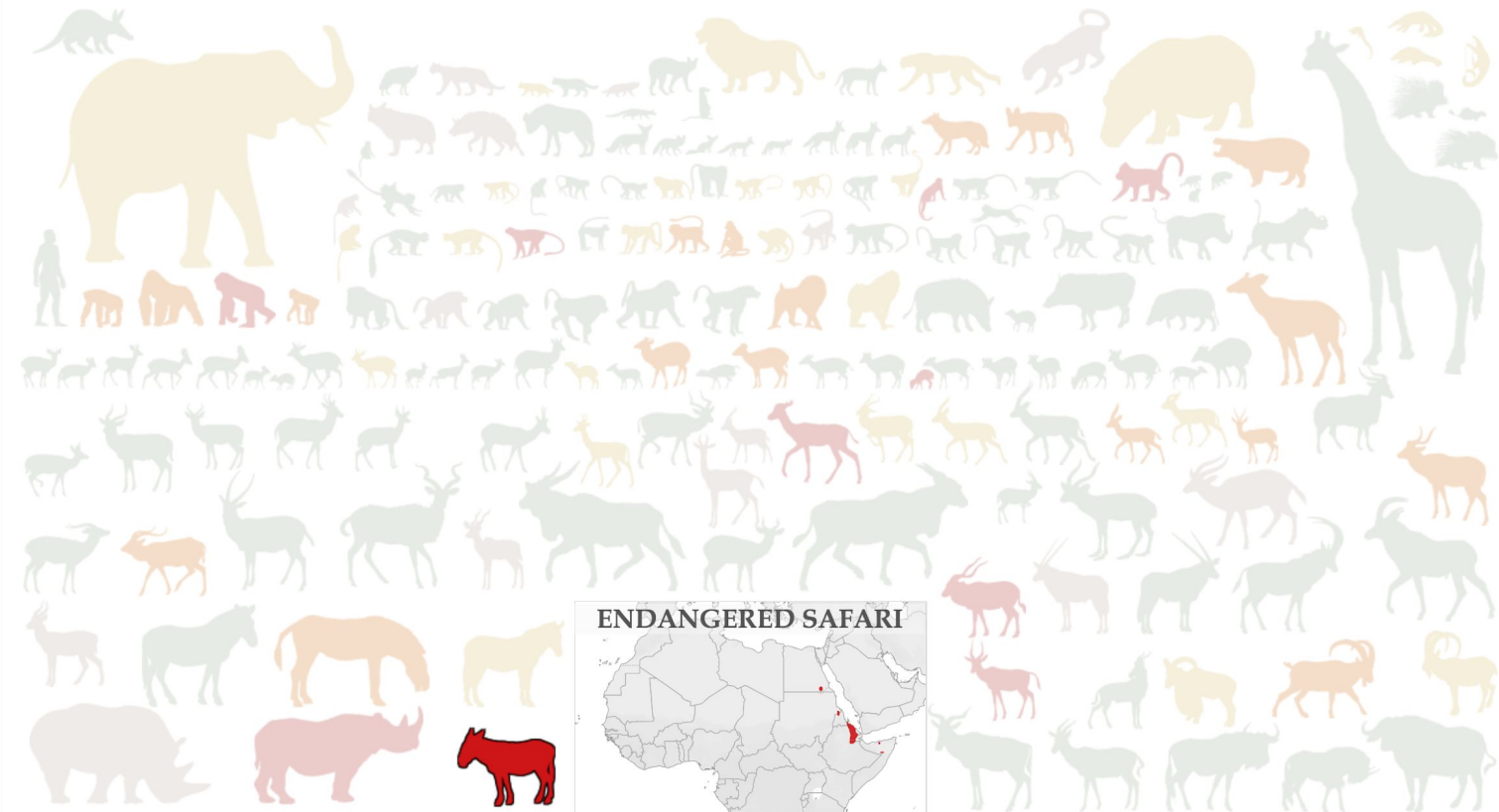
data from v2014.3
**The IUCN Red List
 of Threatened Species**
www.iucnredlist.org

Black Rhinoceros
Diceros bicornis
 Population: increasing
 Status: Critically Endangered



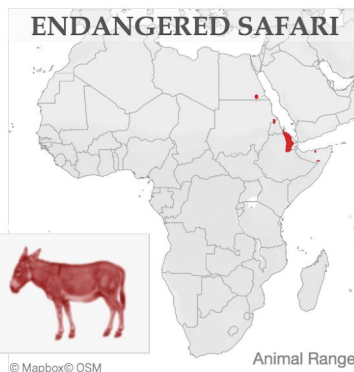
■ Critically Endangered
 ■ Endangered
 ■ Vulnerable
 ■ Near Threatened
 ■ Least Concern

Population
 DECREASING Stable or INCREASING



data from v2014.3
**The IUCN Red List
 of Threatened Species**
www.iucnredlist.org

African Wild Ass
Equus africanus
 Population: decreasing
 Status: Critically Endangered



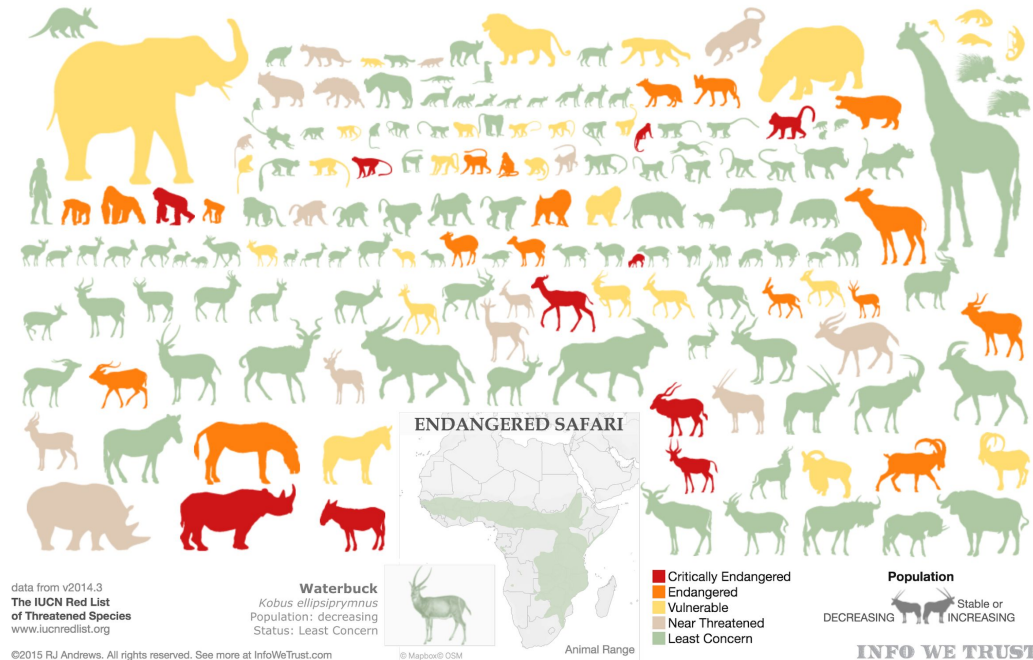
■ Critically Endangered
 ■ Endangered
 ■ Vulnerable
 ■ Near Threatened
 ■ Least Concern

Population
 DECREASING  STABLE or INCREASING

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
	Map title	Common name	Common name	Family	Genus	Inches	Measure	Name	Number of Rec	Order	Population trend	Red List status	Red List status	Site	Size	Species ID	Species	Title	X	Height	Width	X Ctr	Y Ctr	Y						
1	Western Gorilla	Western Gorilla	Western Gorilla	HOMINIDAE	Gorilla	60	height	Western-gorilla	1	PRIMATES	decreasing	Critically Endan	CR	phylopic.org	121	9404	gorilla	Western Gorilla	342	104	121	402.5	1187							
2	Aders' Duiker	Aders' Duiker	Aders' Duiker	BOVIDAE	Cephalophus	12	height at shoul	Aders'-Duiker_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	47	4137	adersi	Aders' Duiker	1550	39	47	1573.5	1042.5							
3	Hirola Range	Hirola	Hirola, Hunter's	BOVIDAE	Beatragus	39	height at shoul	Hirola_--Beatra	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	161	6234	hunteri	Hirola Beatragus	1633	159	161	1713.5	501.5							
4	Addax Range	Addax	Addax	BOVIDAE	Addax	41	height at shoul	Addax_--Addax	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	167	512	nasomaculatus	Addax Addax	1598	152	167	1681.5	652							
5	Dama Gazelle	Dama Gazelle	Dama Gazelle, /	BOVIDAE	Nanger	43	height at shoul	Dama-Gazelle_	1	CETARTIODACT	decreasing	Critically Endan	CR	http://www.pla	185	8968	dama	Dama-Gazelle	1291	158	185	1390	931							
6	African Wild As	African Wild As	African Wild As	EQUIDAE	Equus	43	height at shoul	African-Wild-As	1	PERISSODACTY	decreasing	Critically Endan	CR	http://www.pla	188	7949	africanus	African Wild As	762	145	188	856	346.5							
7	Pennant's Red (Pennant's Red)	Pennant's Red (Pennant's Red)	Pennant's Red (	CERCOPITHECI	Procolobus	28	length w/out	ta Pennant's-Red-	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	117	39996	pennanti	Pennant's Red (	847	62	117	905.5	1288							
8	Kipunji Range	Kipunji	Kipunji	CERCOPITHECI	Rungwecebus	35	length w/out	ta Kipunji_--Rungwe	1	PRIMATES	decreasing	Critically Endan	CR	http://www.pla	141	136791	kipunji	Kipunji Rungwe	1894	94	141	1964.5	1405							
9	Bonobo Range	Bonobo	Bonobo, Pygmy	HOMINIDAE	Pan	36	height	Bonobo_--Pan-i	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	73	15932	paniscus	Bonobo Pan pygmaeus	469	73	69	503.5	1171.5							
10	Eastern Gorilla	Eastern Gorilla	Eastern Gorilla,	HOMINIDAE	Gorilla	69	height	Eastern-Gorilla-	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	130	39994	beringei	Eastern Gorilla	211	109	130	276	1189.5							
11	Chimpanzee Ra	Chimpanzee	Chimpanzee, R	HOMINIDAE	Pan	40	height	Chimpanzee--f	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	85	15933	troglydotes	Chimpanzee f	113	74	85	155.5	1172							
12	Ethiopian Wolf	Ethiopian Wolf	Ethiopian Wolf,	CANIDAE	Canis	24	height at shoul	Ethiopian-Wolf-	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	135	3748	simensis	Ethiopian Wolf	1564	82	135	1631.5	1484							
13	African Wild Dc	African Wild Dc	African Wild Dc	CANIDAE	Lycan	30	height at shoul	African-Wild-Dc	1	CARNIVORA	decreasing	Endangered	EN	http://www.pla	134	12436	pictus	African Wild Dc	1711	92	134	1778	1489							
14	Slender-horned	Slender-horned	Slender-horned	BOVIDAE	Gazella	26	height at shoul	Slender-horned	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	113	8972	leptoceros	Slender-horned	2101	113	99	2150.5	942.5							
15	Jentink's Duiker	Jentink's Duiker	Jentink's Duiker	BOVIDAE	Cephalophus	31	height at shoul	Jentink's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4140	jentinki	Jentink's Duiker	1068	100	112	1124	1073							
16	Nile Lechwe Ra	Nile Lechwe	Nile Lechwe	BOVIDAE	Kobus	37	height at shoul	Nile-Lechwe--K	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	168	11034	megaceros	Nile Lechwe K	177	132	168	261	717							
17	Mountain Nyali	Mountain Nyali	Mountain Nyali,	BOVIDAE	Tragelaphus	50	height at shoul	Mountain-Nyali-	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	195	22046	buxtoni	Mountain Nyali	2381	195	191	2476.5	868.5							
18	Speke's Gazelle	Speke's Gazelle	Speke's Gazelle	BOVIDAE	Gazella	24	height at shoul	Speke's-Gazelle	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	120	8975	spelei	Speke's Gazelle	1882	116	120	1942	944							
19	Abbott's Duiker	Abbott's Duiker	Abbott's Duiker	BOVIDAE	Cephalophus	26	height at shoul	Abbott's-Duiker	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	112	4151	spadix	Abbott's Duiker	1240	89	112	1296	1067.5							
20	Okapi Range	Okapi	Okapi	GIRAFIDAE	Okapia	63	height at shoul	Okapi_--Okapia	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	236	15188	johnstoni	Okapi Okapia	2087	217	236	2205	1131.5							
21	Pygmy Hippoc	Pygmy Hippoc	Pygmy Hippoc	HIPPOPOTAMIC	Choropsis	31	height at shoul	Pygmy-Hippoc	1	CETARTIODACT	decreasing	Endangered	EN	http://www.pla	190	10032	iberiensis	Pygmy Hippoc	2067	95	190	2162	1432.5							
22	Tana River Cres	Tana River Cres	Tana River Cres	CERCOPITHECI	Cercopithec	26	length w/out	ta Tana-River-Cres	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	75	4200	galentius	Tana River Cres	1213	75	71	1248.5	1293.5							
23	Sanje Mangabe	Sanje Mangabe	Sanje Mangabe	CERCOPITHECI	Cercocebus	26	length w/out	ta Sanje-Mangabe	1	PRIMATES	decreasing	Endangered	EN	http://www.pla	91	4203	sanjei	Sanje Mangabe	1122	74	91	1167.5	1303							
24	Spotted Hyaen	Spotted Hyaen	Spotted Hyaen	HYAENIDAE	Crocuta	36	height	Spotted-Hyaeni	1	CARNIVORA	decreasing	Least Concern	LC	http://www.pla	142	5674	crocuta	Spotted Hyaen	975	102	142	946	1490							
25	Wild Cat Range	Wild Cat	Wild Cat, Wilde	FELIDAE	Felis	14	height at shoul	Wild-Cat_--Felis	1	CARNIVORA	decreasing	Least Concern	LC	http://www.pla	93	8543	silvestris	Wild Cat Felis	827	40	93	973.5	1570							
26	Ogilby's Duiker	Ogilby's Duiker	Ogilby's Duiker	BOVIDAE	Cephalophus	22	height at shoul	Ogilby's-Duiker	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	105	4148	ogilbyi	Ogilby's Duiker	1890	76	105	1942.5	1061							
27	Natal Red Duik	Natal Red Duik	Natal Red Duik	BOVIDAE	Cephalophus	20	height at shoul	Natal-Red-Duik	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	70	4144	natalensis	Natal Red Duik	1674	63	70	1709	1054.5							
28	Oribi Range	Oribi	Oribi	BOVIDAE	Ourebia	26	height at shoul	Oribi_--Ourebia	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	111	15730	ourebii	Oribi Ourebia	470	89	111	525.5	1067.5							
29	Topi Range	Topi	Topi, Tsessebe,	BOVIDAE	Damaliscus	47	height at shoul	Topi_--Damalisc	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	189	6235	lunatus	Topi Damaliscus	1782	176	189	1876.5	348							
30	Waterbuck Ran	Waterbuck	Waterbuck--Kc	BOVIDAE	Kobus	53	height at shoul	Waterbuck--Kc	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	239	11035	ellipsiprymus	Waterbuck Kc	340	239	201	440.5	770.5							
31	African Buffalo	African Buffalo	African Buffalo	BOVIDAE	Syncerus	67	height at shoul	African-Buffalo-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	265	21251	caffer	African Buffalo	2319	184	265	2451.5	352							
32	Maxwell's Duik	Maxwell's Duik	Maxwell's Duik	BOVIDAE	Philantomba	16	height at shoul	Maxwell's-Duik	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	90	4142	maxwellii	Maxwell's Duik	1176	49	90	1221	1047.5							
33	Black-fronted D	Black-fronted D	Black-fronted D	BOVIDAE	Cephalophus	20	height at shoul	Black-fronted-D	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	71	4146	nigrifrons	Black-fronted D	1749	68	71	1784.5	1057							
34	Yellow-backed I	Yellow-backed I	Yellow-backed I	BOVIDAE	Cephalophus	31	height at shoul	Yellow-backed-I	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	120	4150	silvicultor	Yellow-backed I	2032	98	120	2092	1072							
35	Bohor Reedbuck	Bohor Reedbuck	Bohor Reedbuck	BOVIDAE	Redunca	35	height at shoul	Bohor-Reedbuck	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	133	19392	redunda	Bohor Reedbuck	287	133	126	350	938.5							
36	Kob Range	Kob	Kob	BOVIDAE	Kobus	43	height at shoul	Kob_--Kobus-kc	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	176	11036	kob	Kob Kobus kob	138	176	156	216	918							
37	Hartebeest Ran	Hartebeest	Hartebeest, Sw	BOVIDAE	Alcelaphus	57	height at shoul	Hartebeest_--A	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	212	811	buselaphus	Hartebeest Al	1567	206	212	1673	363							
38	Harvey's Duiker	Harvey's Duiker	Harvey's Duiker	BOVIDAE	Cephalophus	16	height at shoul	Harvey's-Duiker	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	70	4154	harveyi	Harvey's Duiker	1828	53	70	1863	1049.5							
39	Sitatunga Rang	Sitatunga	Sitatunga, Mari	BOVIDAE	Tragelaphus	45	height at shoul	Sitatunga--Tra	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	202	22050	spekii	Sitatunga Tra	1797	199	202	1898	808.5							
40	Royal Antelope	Royal Antelope	Royal Antelope	BOVIDAE	Neotragus	10	height at shoul	Royal-Antelope-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	54	14602	pygmaeus	Royal Antelope	442	34	54	469	1040							
41	White-bellied C	White-bellied C	White-bellied C	BOVIDAE	Cephalophus	20	height at shoul	White-bellied-C	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	109	4141	leucogaster	White-bellied C	1356	66	109	1410.5	1055							
42	Black Duiker Ra	Black Duiker	Black Duiker	BOVIDAE	Cephalophus	20	height at shoul	Black-Duiker_--C	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	103	4145	niger	Black Duiker C	1569	64	103	1620.5	1056							
43	Bay Duiker Ran	Bay Duiker	Bay Duiker	BOVIDAE	Cephalophus	22	height at shoul	Bay-Duiker_--Ce	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	91	4139	dorsalis	Bay Duiker Ce	1461	72	91	1506.5	1059							
44	Grant's Gazelle	Grant's Gazelle	Grant's Gazelle	BOVIDAE	Nanger	35	height at shoul	Grant's-Gazelle-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	169	8971	granti	Grant's Gazelle	1715	159	169	1799.5	965.5							
45	Roan Antelope	Roan Antelope	Roan Antelope	BOVIDAE	Hippotragus	63	height at shoul	Roan-Antelope-	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	258	10167	equinus	Roan Antelope	2323	234	258	2452	721							
46	Giant Eland Ra	Giant Eland	Giant Eland, W	BOVIDAE	Tragelaphus	69	height at shoul	Giant-Eland_--T	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	330	44172	derbianus	Giant Eland Tr	857	246	330	1022	780							
47	Red-flanked Du	Red-flanked Du	Red-flanked Du	BOVIDAE	Cephalophus	14	height at shoul	Red-flanked-Du	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	73	4149	rufilatus	Red-flanked Du	1024	51	73	1060.5	1048.5							
48	Forest Hog Ran	Forest Hog	Forest Hog, We	SUIDAE	Hylochoerus	40	height at shoul	Forest-Hog_--H	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	184	41769	meinerzhageni	Forest Hog Hy	1771	113	184	1863	1182.5							
49	Red River Hog	R Red River Hog	Red River Hog	SUIDAE	Potamochoerus	30	height at shoul	Red-River-Hog_	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	143	41771	porcus	Red River Hog	1953	83	143	2024.5	1167.5							
50	Water Chevrot	Water Chevrot	Water Chevrot	TRAGULIDAE	Hymoschoerus	14	height at shoul	Water-Chevrot	1	CETARTIODACT	decreasing	Least Concern	LC	http://www.pla	63	10341	aquaticus	Water Chevrot	1714	47	63	1745.5	1148.5							
51	Giraffe Range	Giraffe	Giraffe	GIRAFIDAE	Giraffa	144	height at shoul	Giraffe_--Giraffi	1	CETARTIODACT	decreasing	Least Concern	LC	phylopic.org	674	9194	camelopardalis	Giraffe Giraffa	2201	674	381	2391.5	1360							
52	Gelada Baboon	Gelada Baboon	Gelada Baboon	CERCOPITHECI	Theropithecus	30	length w/out	ta Gelada-Baboon	1	PRIMATES	decreasing	Least Concern	LC	http://www.bic	124</															

THE POWER OF DATA VISUALIZATION

- ▶ Translates
Incomprehensible rows of data become information we can actually understand.
- ▶ Democratizes
Offers an approachable format regardless of an individual's technical background.
- ▶ Humanizes
At its best, transforms the rigid tables into a form that creates empathy for the content itself.



WHAT IT'S NOT

Data visualization is **not** exclusionary.



WHAT IT'S NOT

Data visualization is **not** heartless.



WHAT IT'S NOT

Data visualization is **not** complicated.



DATA VISUALIZATION IS SIMPLE

All data visualizations have the same fundamental building blocks.

We represent data with three types of marks:

Points



Lines



Area



And then we tell multiple marks apart by:

Position



Size

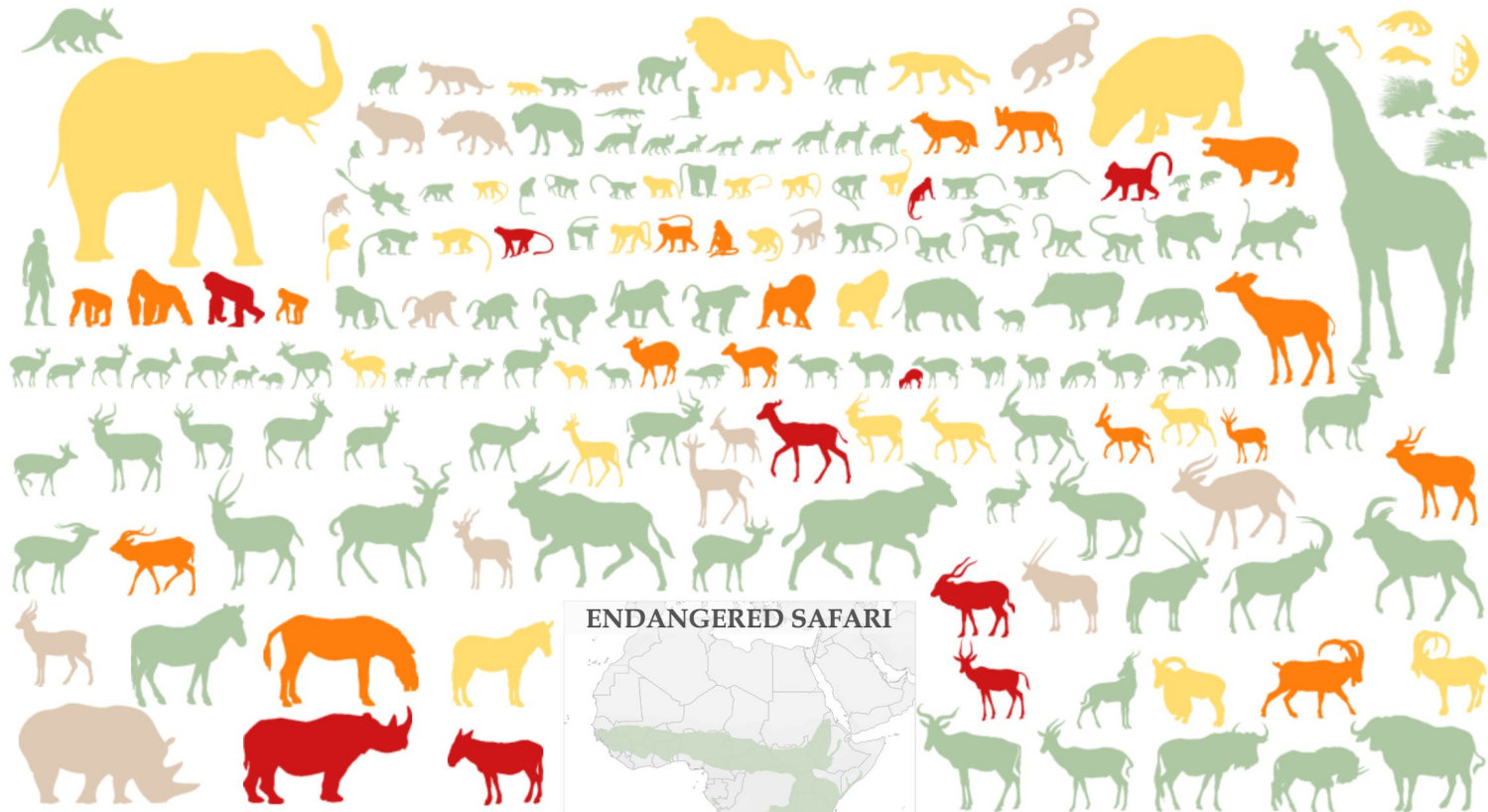


Color



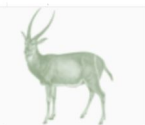
Shape





data from v2014.3
**The IUCN Red List
 of Threatened Species**
www.iucnredlist.org

Waterbuck
Kobus ellipsiprymnus
 Population: decreasing
 Status: Least Concern



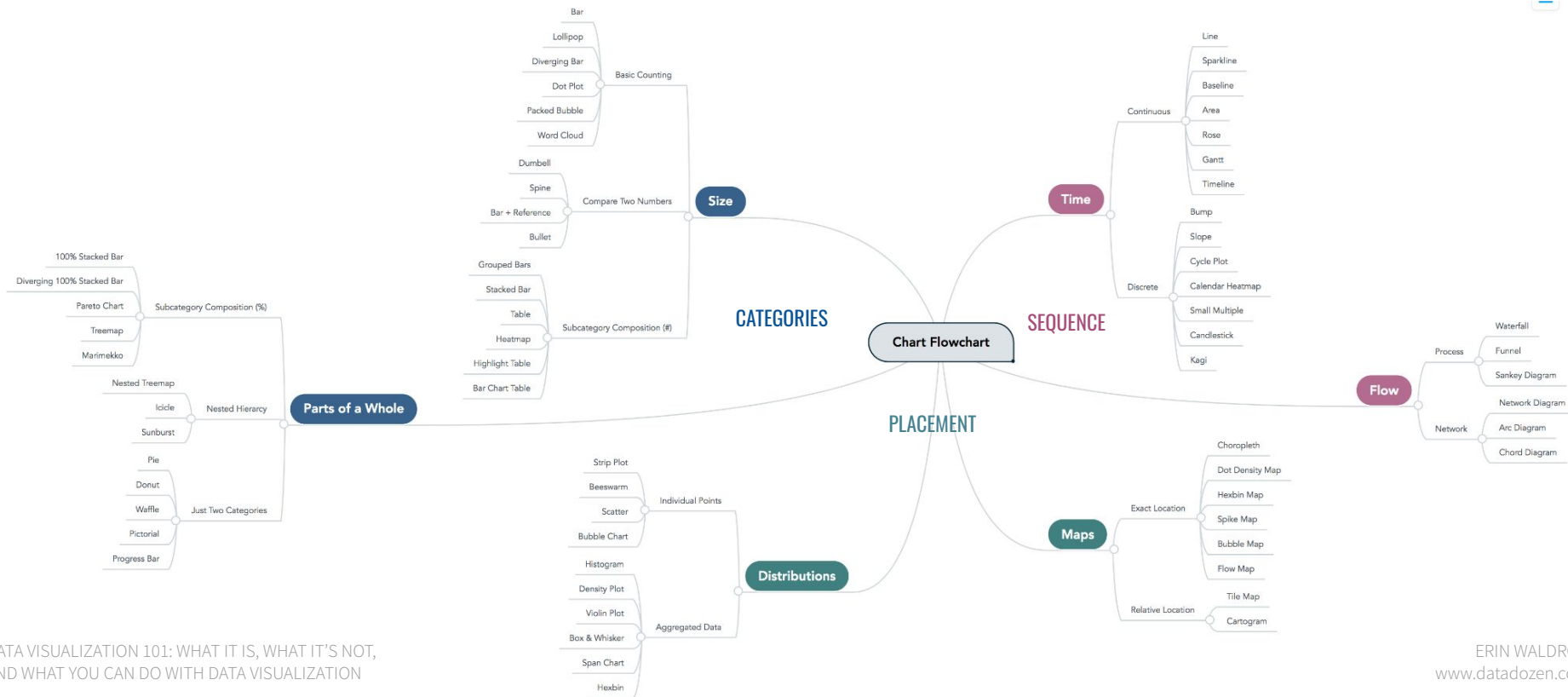
- Critically Endangered
- Endangered
- Vulnerable
- Near Threatened
- Least Concern

Population
 DECREASING STABLE OR INCREASING

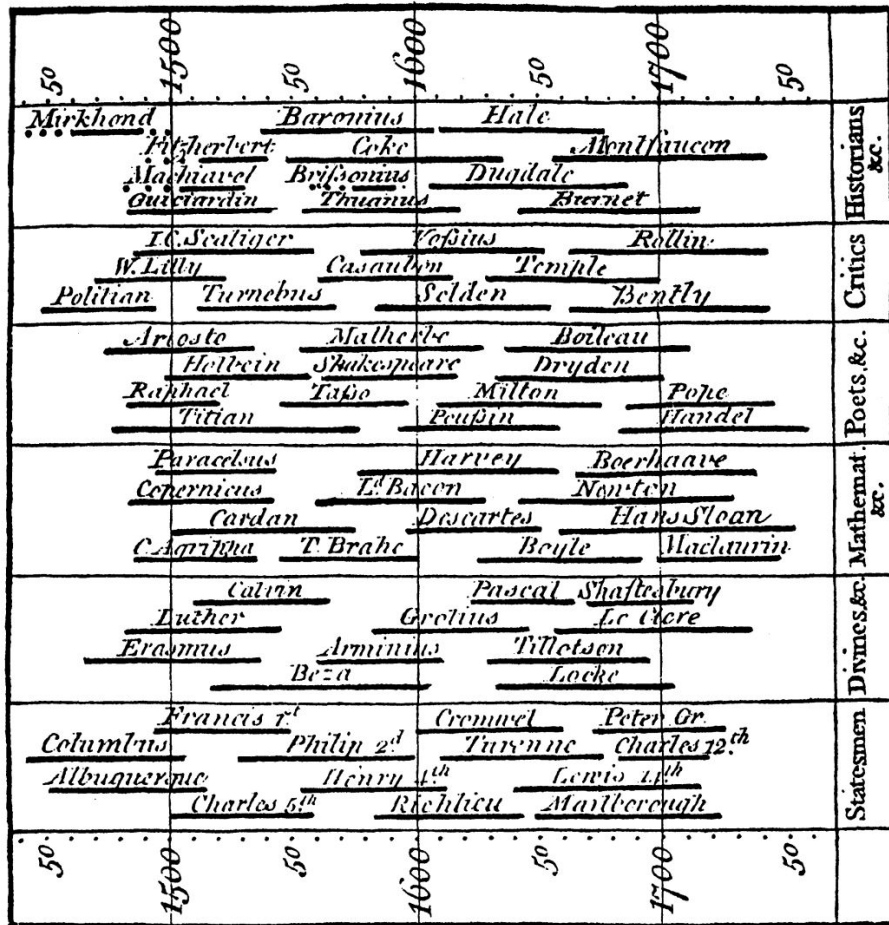
COMMON CHART TYPES

- ▶ Bar Charts
- ▶ Line Graphs
- ▶ Area Charts
- ▶ Pie Chart
- ▶ Box and Whisker
- ▶ Dot Map
- ▶ Gantt Chart
- ▶ Timelines
- ▶ Bullet Graph
- ▶ Bump Chart
- ▶ Diverging Bars
- ▶ Choropleth Map
- ▶ Histograms
- ▶ Donut Chart
- ▶ Treemap
- ▶ Heatmap
- ▶ Scatterplots
- ▶ Small Multiples

DATA VISUALIZATION RENAISSANCE



A SPECIMEN of a CHART of BIOGRAPHY.



J. Priestley L.L. D. inv. et delin.

TIMELINE

A CHART OF BIOGRAPHY

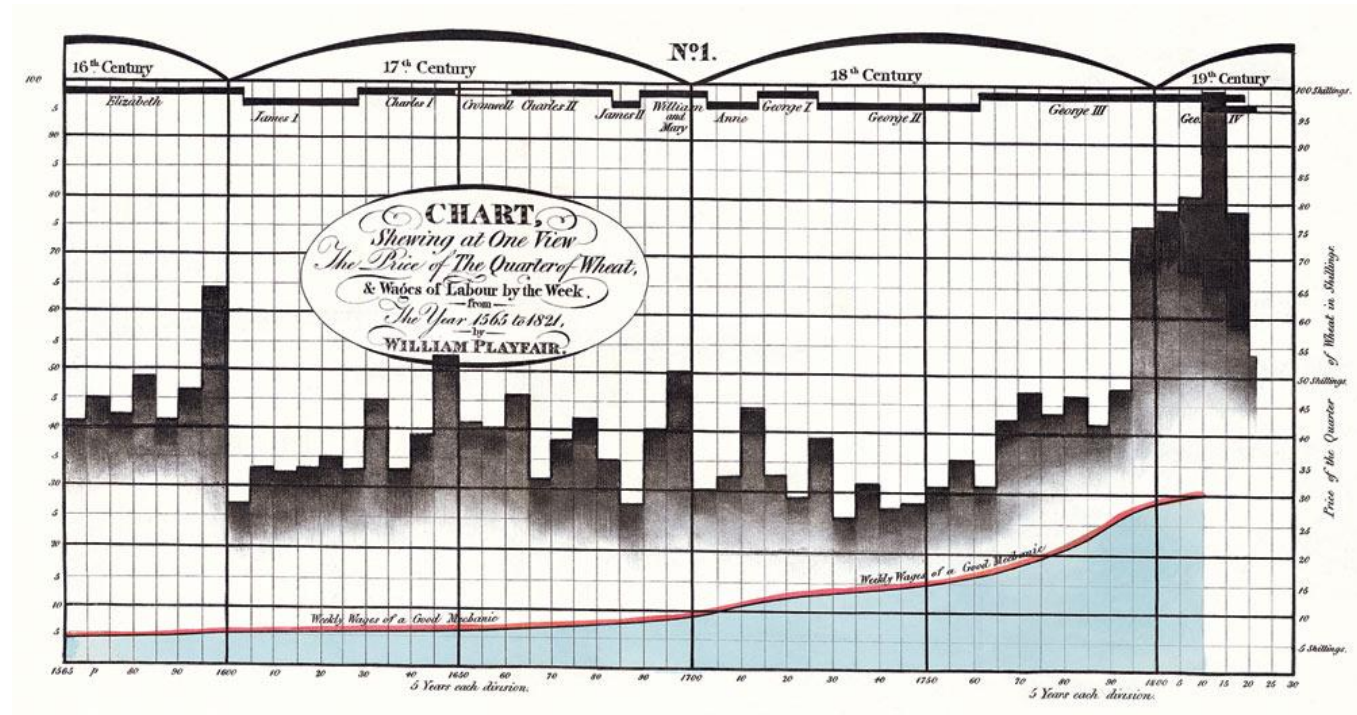
JOSEPH PRIESTLEY

1765

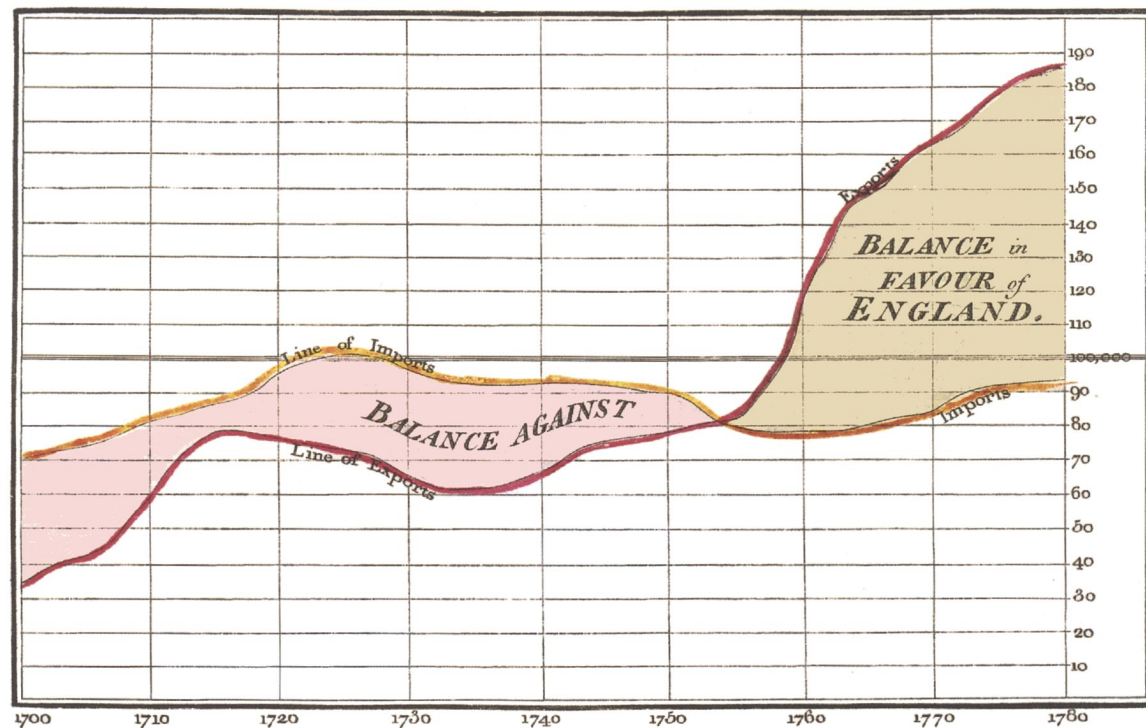
BAR CHART

WHEAT & WAGES

WILLIAM PLAYFAIR
1786



Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.



The Bottom line is divided into Years, the Right hand line into £10,000 each.
 Published as the Act directs, 1st May 1786, by W^m Playfair.
 Made & sold at 352, Strand, London.

LINE GRAPH

EXPORTS AND IMPORTS

WILLIAM PLAYFAIR

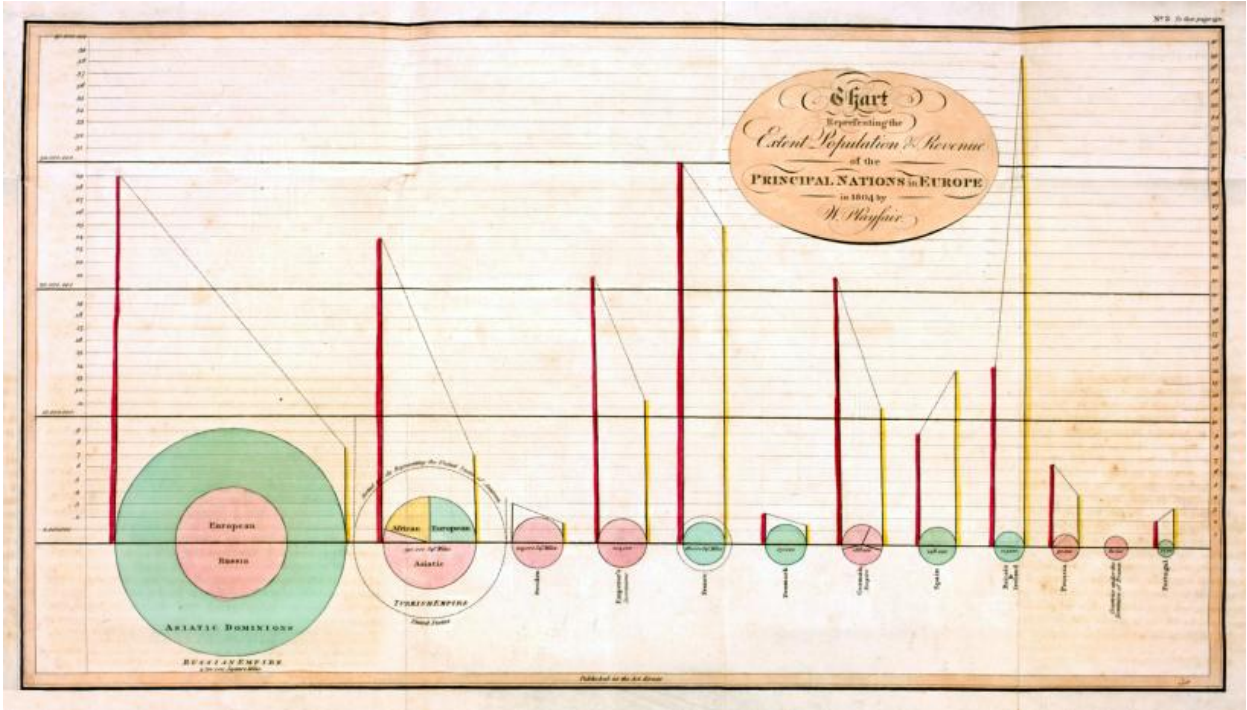
1786

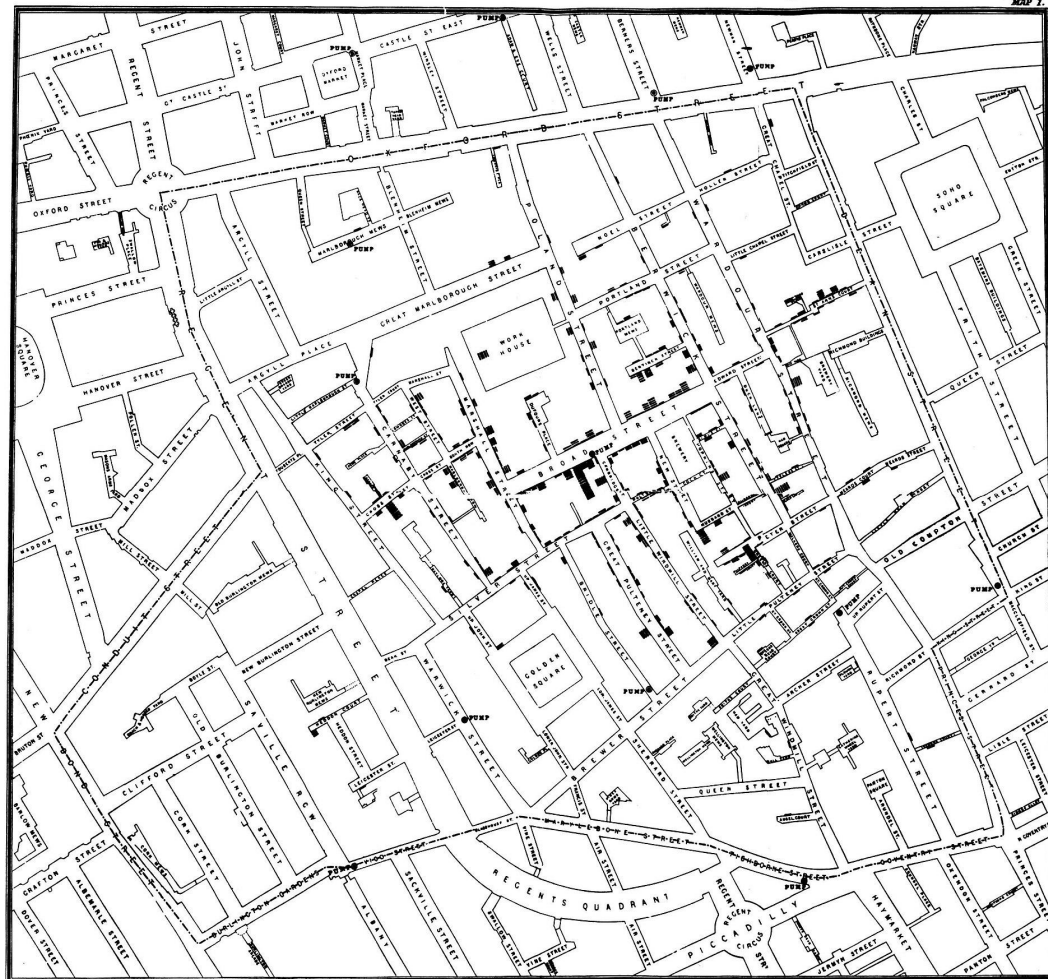
PIE CHART

POPULATION AND REVENUE

WILLIAM PLAYFAIR

1801





DOT MAP

CHOLERA NEAR BROAD STREET

JOHN SNOW

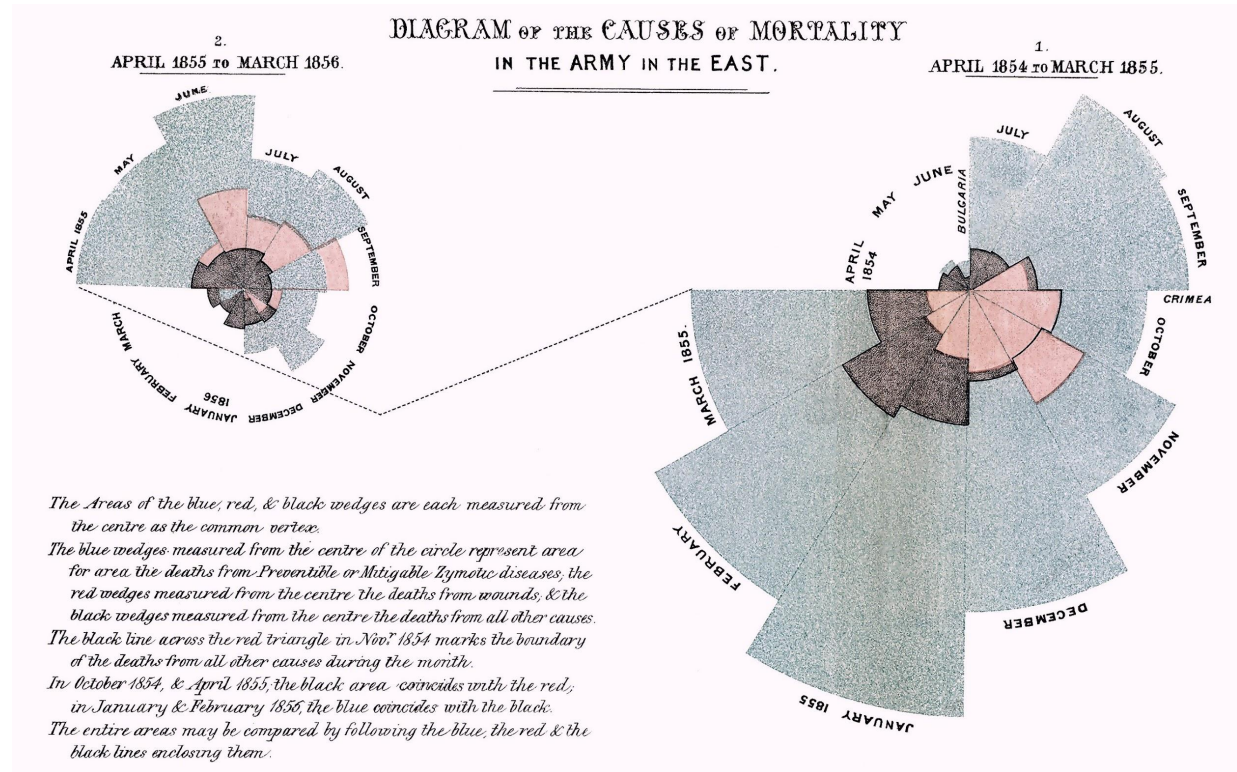
1854

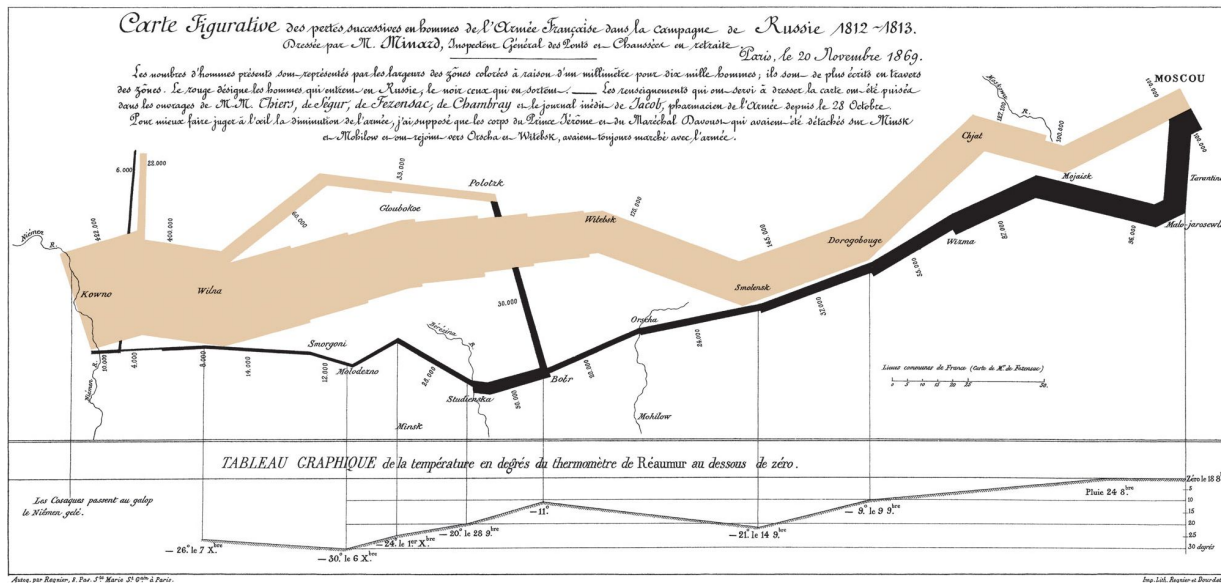
ROSE GRAPH

CAUSES OF MORTALITY

FLORENCE NIGHTINGALE

1858





FLOW CHART

SUCCESSIVE LOSSES IN MEN OF THE FRENCH ARMY IN THE CAMPAIGN OF RUSSIA

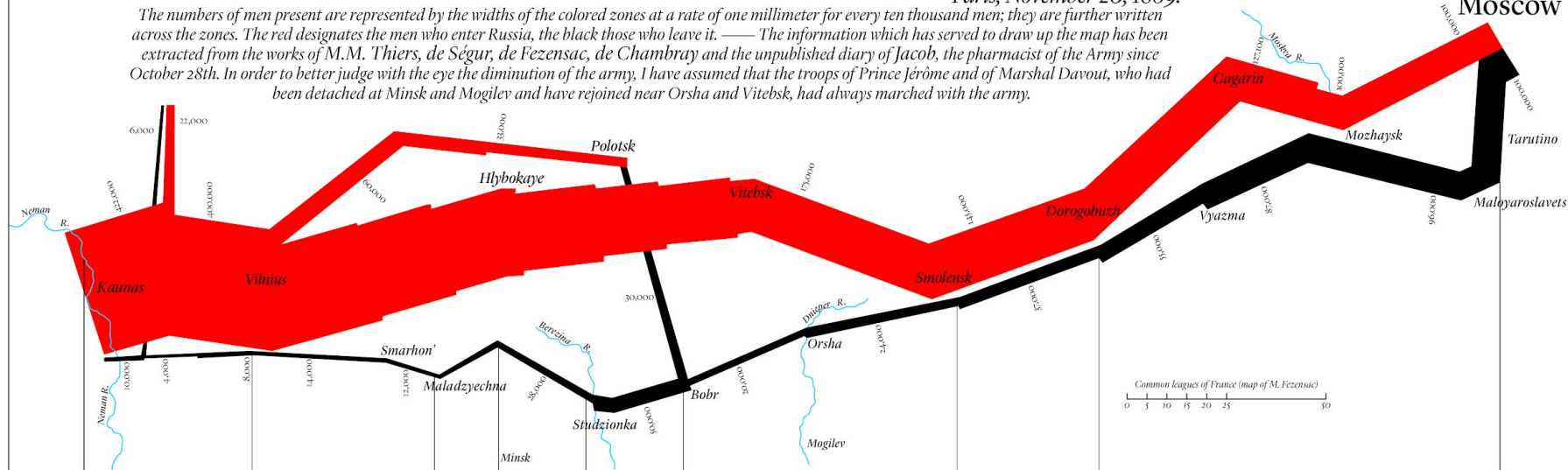
CHARLES MINARD

Figurative Map of the successive losses in men of the French Army in the Russian campaign 1812 ~ 1813

Drawn by M. Minard, Inspector General of Bridges and Roads (retired).

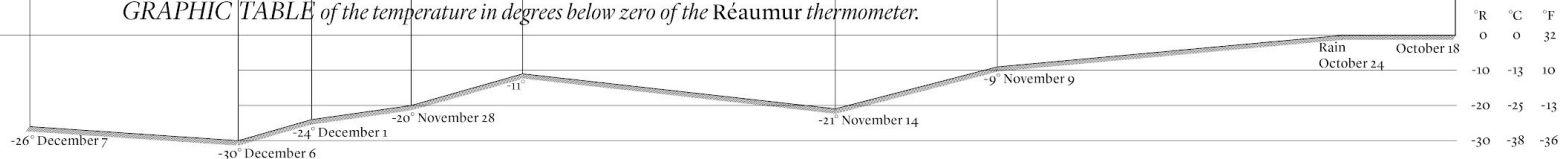
Paris, November 20, 1869.

The numbers of men present are represented by the widths of the colored zones at a rate of one millimeter for every ten thousand men; they are further written across the zones. The red designates the men who enter Russia, the black those who leave it. — The information which has served to draw up the map has been extracted from the works of M.M. Thiers, de Ségur, de Fezensac, de Chambray and the unpublished diary of Jacob, the pharmacist of the Army since October 28th. In order to better judge with the eye the diminution of the army, I have assumed that the troops of Prince Jérôme and of Marshal Davout, who had been detached at Minsk and Mogilev and have rejoined near Orsha and Vitebsk, had always marched with the army.



GRAPHIC TABLE of the temperature in degrees below zero of the Réaumur thermometer.

The Cossacks pass the frozen Neman at a gallop.



GUIDING PRINCIPLE

Form follows **function**.



THE HISTORY OF THE NFL

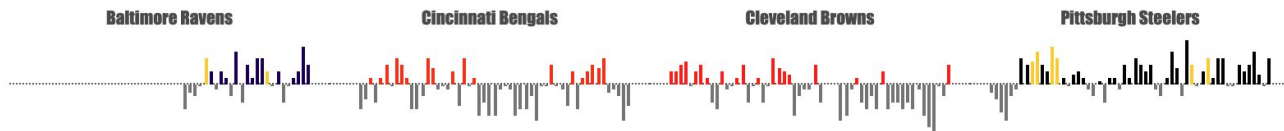
Seasons above or below .500 during the Super Bowl era 1966-2020. Gold represents Super Bowl win.

Hover over each bar to see detailed info from each season.

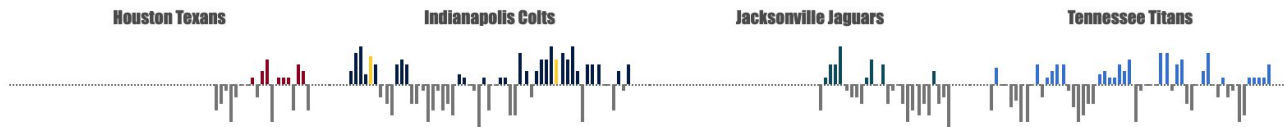
AFC East



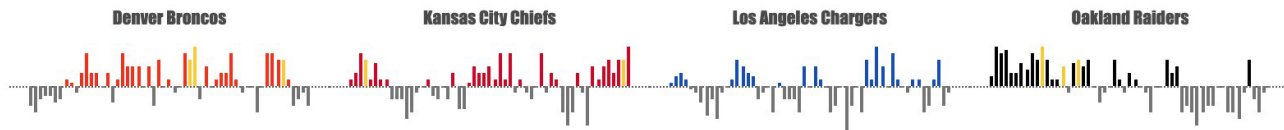
AFC North



AFC South



AFC West



SMALL MULTIPLES

THE HISTORY OF THE NFL

MATT CHAMBERS

2020

THE AGE of BORDERS

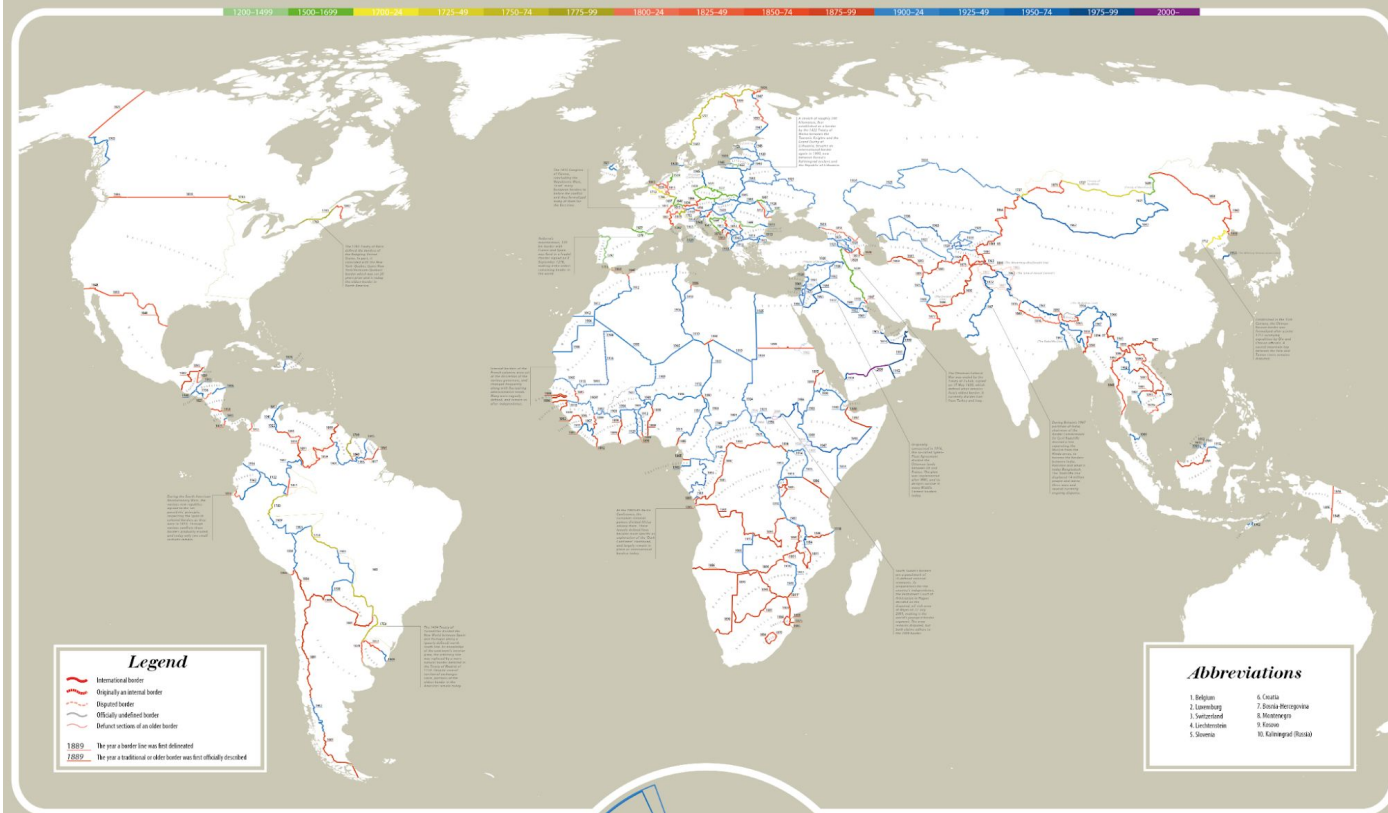
When were the world's current borders first defined?

MAP

THE AGE OF BORDERS

PISSEGURI82

2018



Average border age by region:

Borders younger than 100 years (33,6%):

MAP

THE AGE OF BORDERS

PISSEGURI82

2018

Legend



International border



Originally an internal border



Disputed border



Officially undefined border



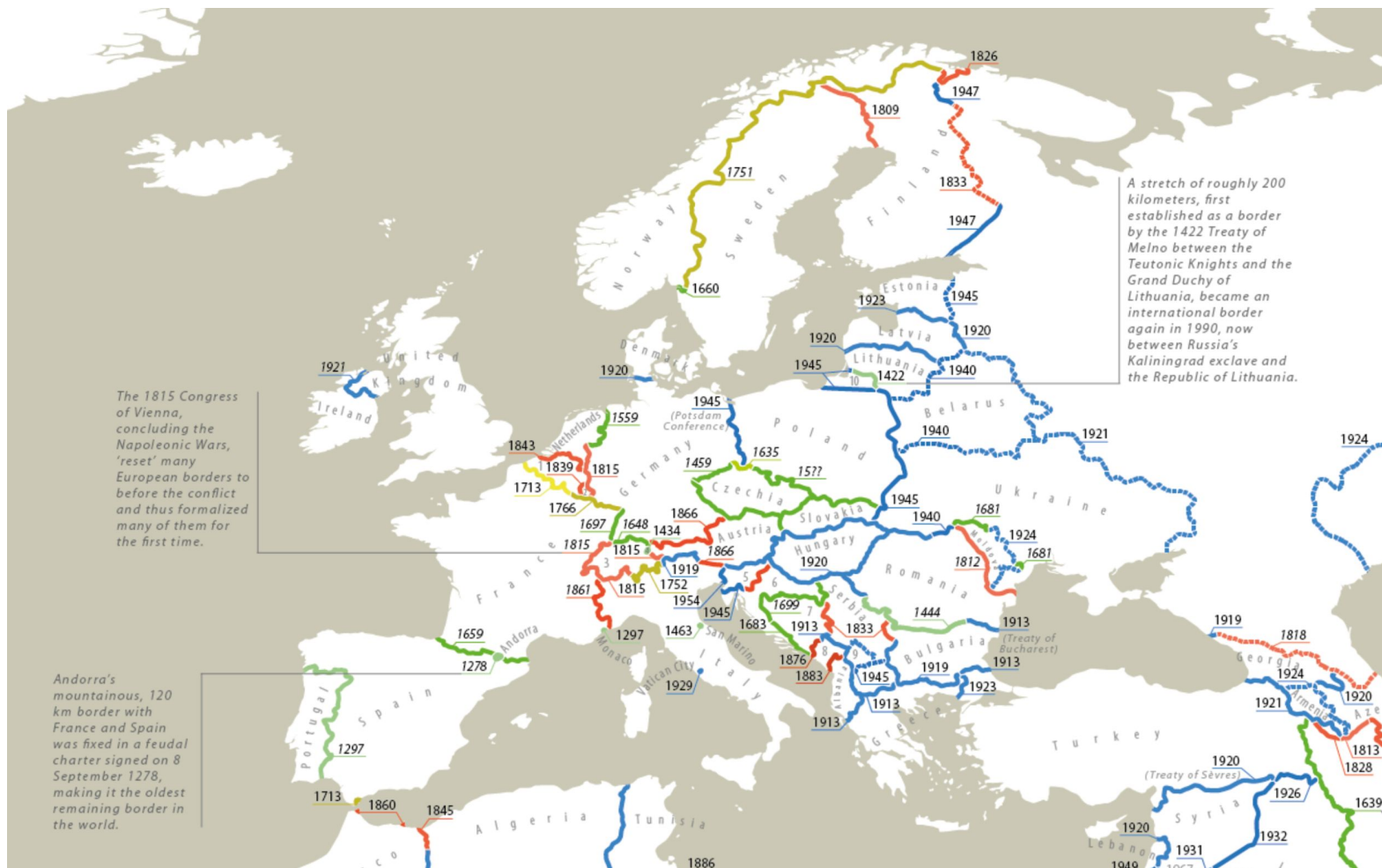
Defunct sections of an older border

1889

The year a border line was first delineated

1889

The year a traditional or older border was first officially described



EUROPE

SHARE

The Scale of the Migrant Crisis, From 160 to Millions

By GREGOR AISCH, SARAH ALMUKHTAR, JOSH KELLER and WILSON ANDREWS UPDATED SEPT. 22, 2015



4

ARTICLES REMAINING

AREA CHART

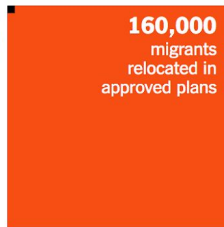
THE SCALE OF THE MIGRANT CRISIS

NEW YORK TIMES

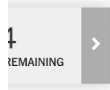
2015

This photo shows about **160** migrants in southern Hungary waiting to board a bus to a registration center on Sept. 9. They will be excluded from the only two relocation plans approved by European leaders so far. The plans will relocate a total of **160,000** people in Greece and Italy to other countries in Europe.

160
migrants in
the photo



The plans add up to the largest agreement ever to distribute asylum seekers among member states. But they address only a small fraction of the expected total.



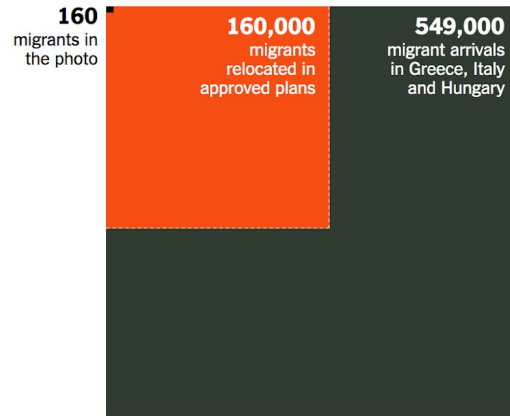
AREA CHART

THE SCALE OF THE MIGRANT CRISIS

NEW YORK TIMES

2015

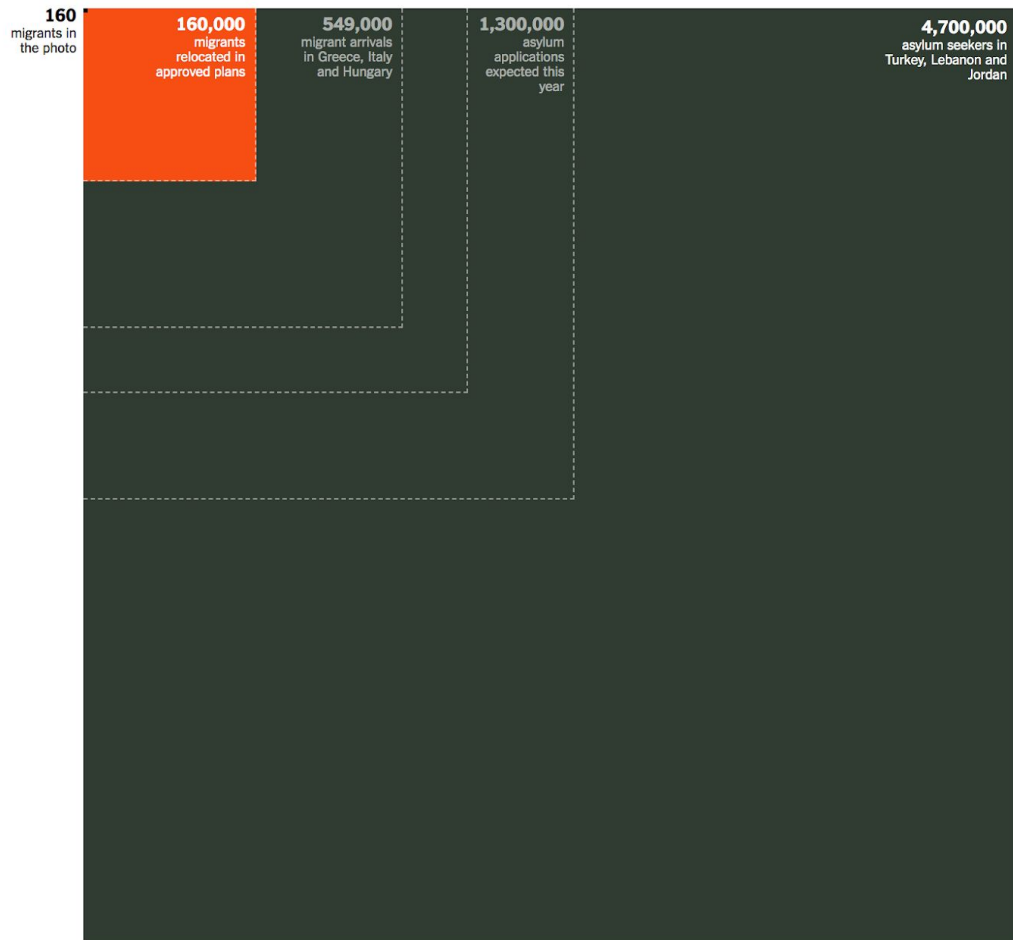
Almost **549,000** migrants have arrived in Greece, Italy and Hungary alone this year, often by boat. Many want to move on to Germany or Sweden, which have stronger job markets and more benefits for refugees.



AREA CHART

THE SCALE OF THE MIGRANT CRISIS

NEW YORK TIMES
2015



Squares show the relative sizes of the numbers and are not meant to convey that they are parts of a whole.

AREA CHART

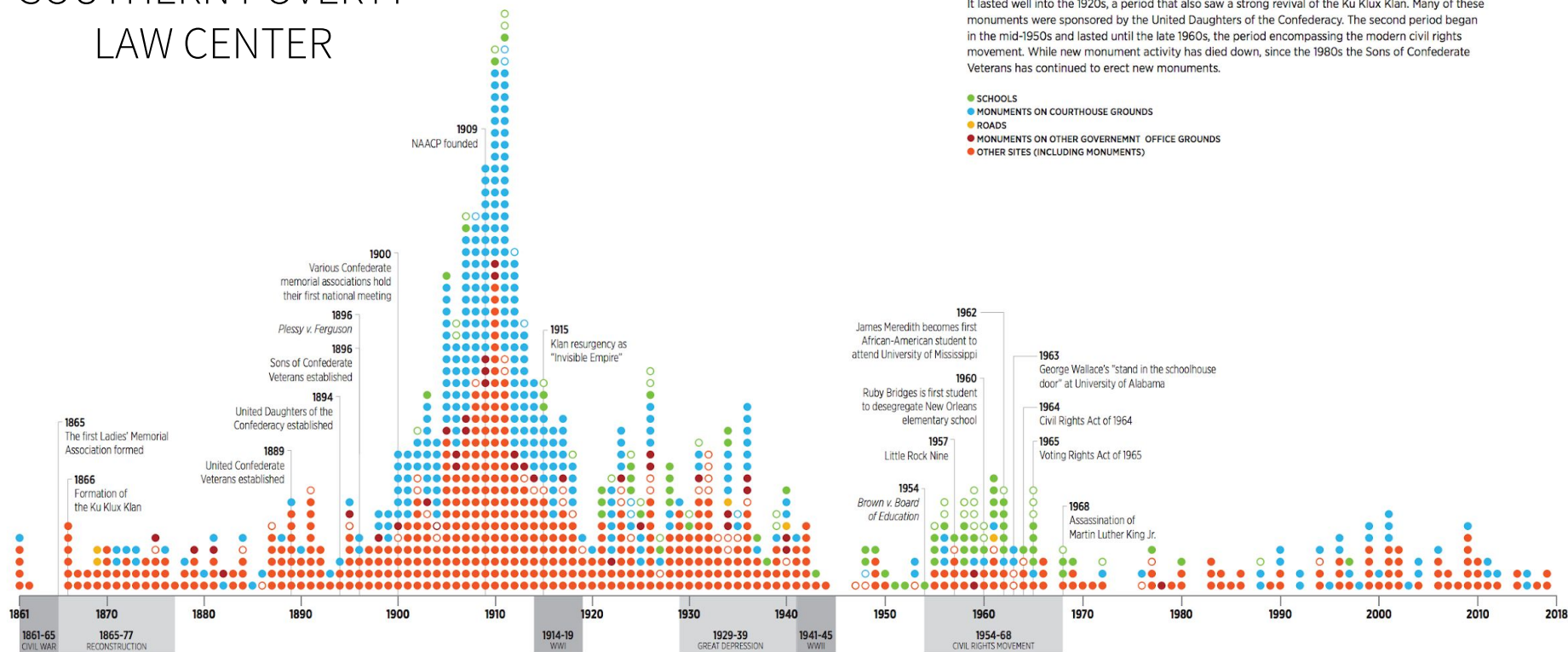
THE SCALE OF THE MIGRANT CRISIS

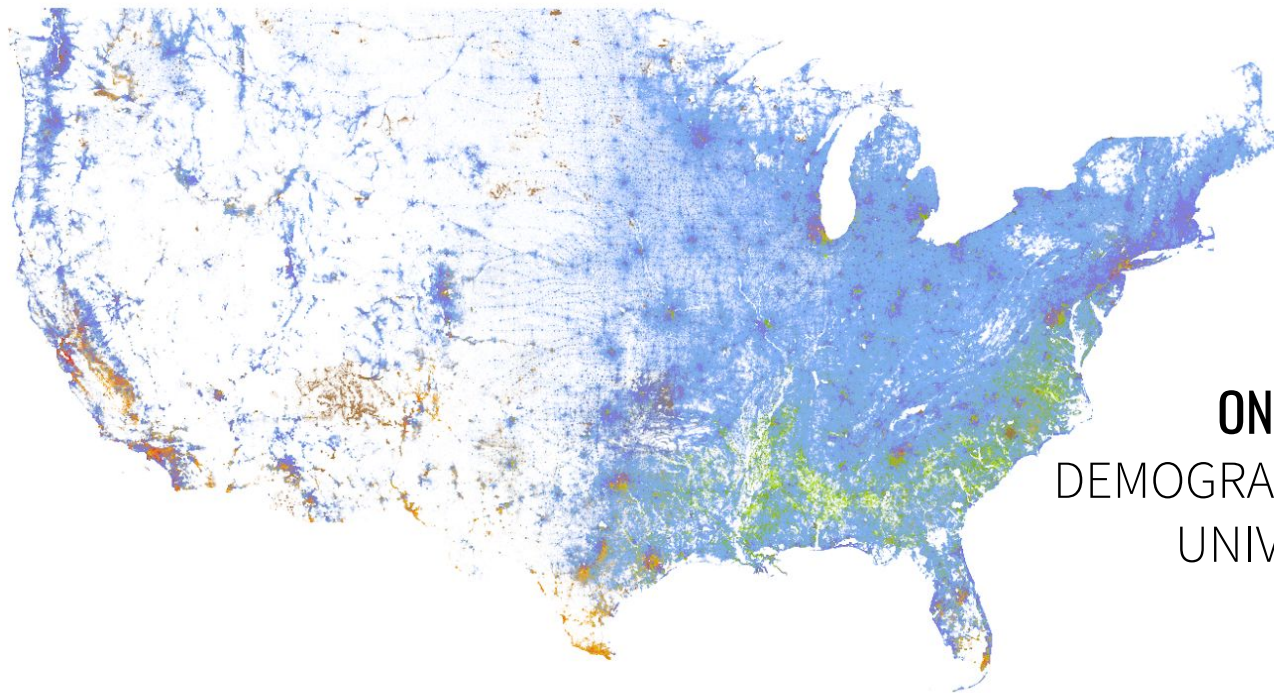
NEW YORK TIMES

2015

FREQUENCY CHART

WHOSE HERITAGE SOUTHERN POVERTY LAW CENTER





MAP

ONE PERSON, ONE DOT

DEMOGRAPHICS RESEARCH GROUP

UNIVERSITY OF VIRGINIA

2010



MAP

ONE PERSON, ONE DOT

DEMOGRAPHICS RESEARCH GROUP

UNIVERSITY OF VIRGINIA

2010

DONUT CHARTS

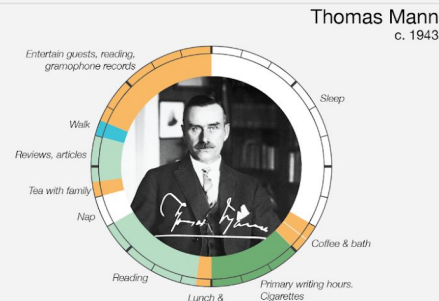
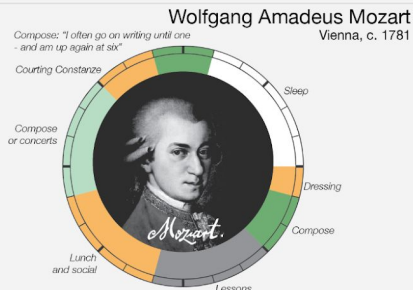
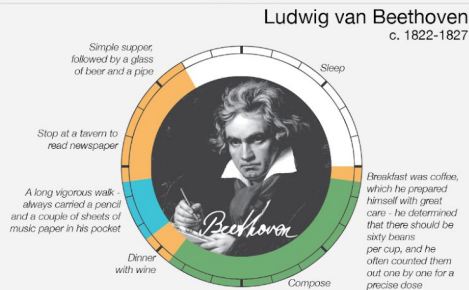
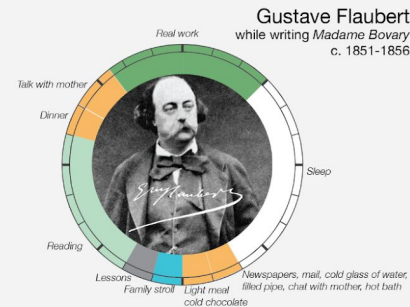
CREATIVE ROUTINES

RJ ANDREWS

2014

CREATIVE ROUTINES

"In the right hands, it can be a finely calibrated mechanism for taking advantage of limited resources... a solid routine fosters a well-worn groove for one's mental energies...." -Mason Currey, author of the inspiring book, *DAILY RITUALS*



THE MAKER'S QUESTION

Which **chart type** should I use?

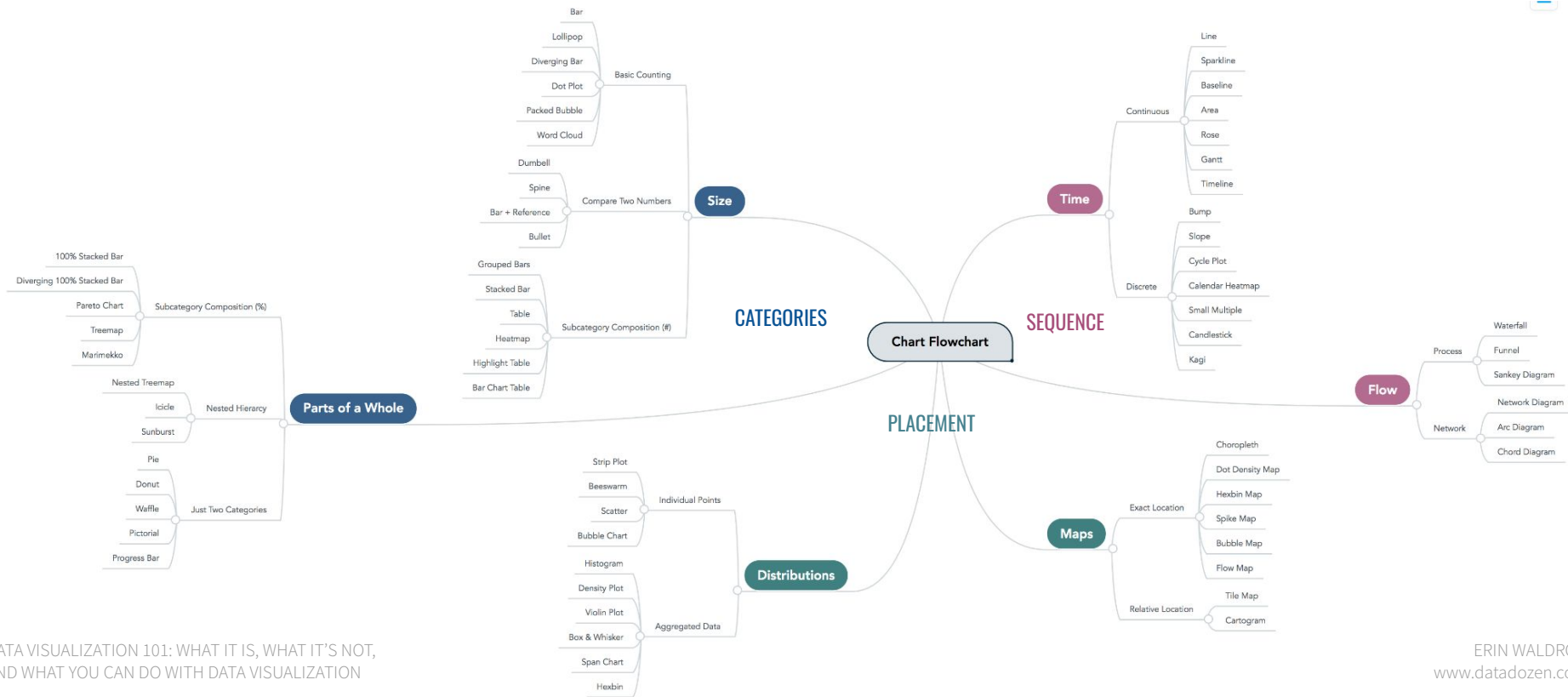


GUIDING PRINCIPLE

Form follows **function**.



PICKING THE RIGHT CHART TYPE



PICKING THE RIGHT CHART TYPE

Typically we're looking for the most intuitive way to present the data.



GOOD REASONS TO CHOOSE A CHART

- ▶ It's easy to read. (When in doubt, start with a bar chart.)
- ▶ It draws the eye immediately to the key point of interest.
- ▶ It works well with the project's final delivery format.

BAD REASONS TO CHOOSE A CHART

- ▶ It's looks flashy, trendy, colorful, complex, or intimidating.
- ▶ It's easy to make in the software I happen to be using.
- ▶ It's the chart type I always use (or one I'm asked always to use.)

PICKING THE RIGHT CHART TYPE



ACCURACY

CORRECT CONCLUSION

- ▶ Start with Bars
- ▶ Avoid Circles
- ▶ Guide Inferences



LEGIBILITY

EASY TO READ



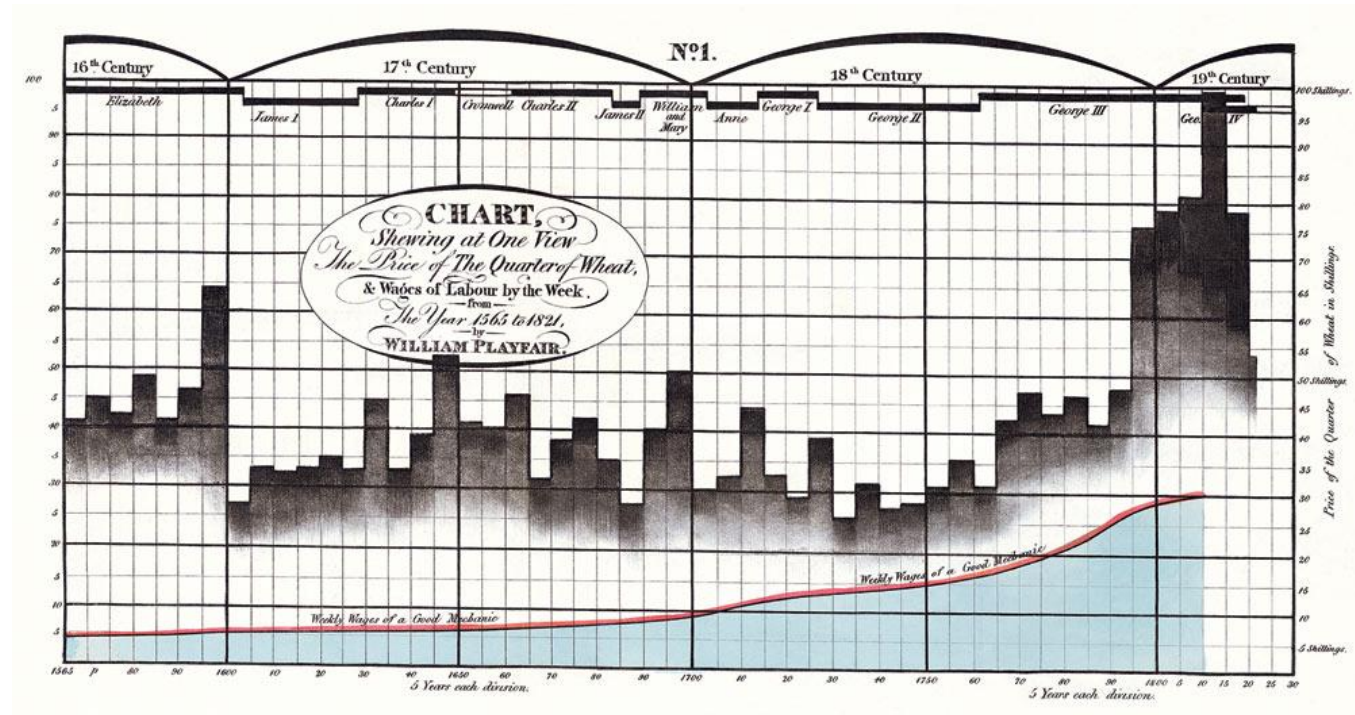
AUDIENCE

COMPATIBLE GOALS

BAR CHART

WHEAT & WAGES

WILLIAM PLAYFAIR
1786

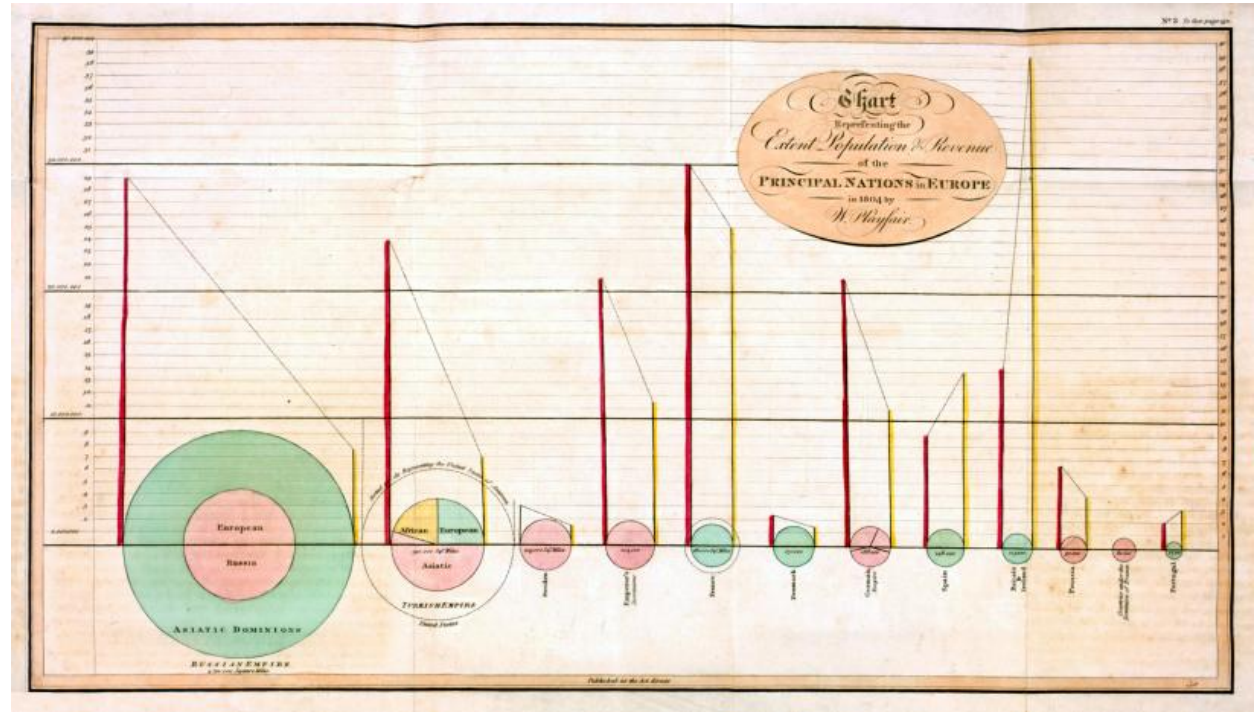


PIE CHART

POPULATION AND REVENUE

WILLIAM PLAYFAIR

1801



DONUT CHARTS

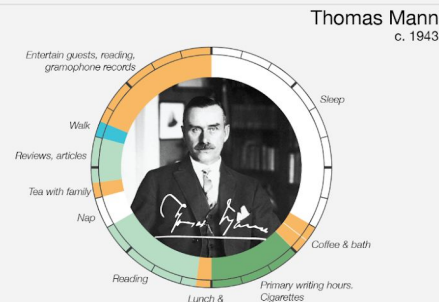
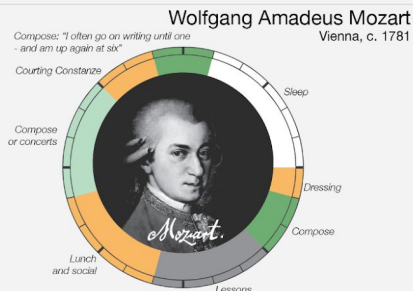
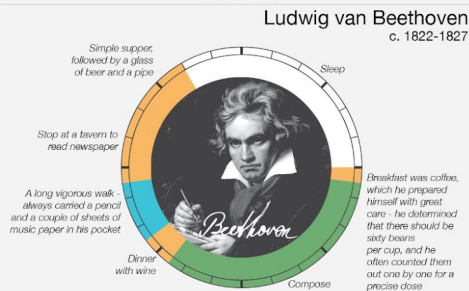
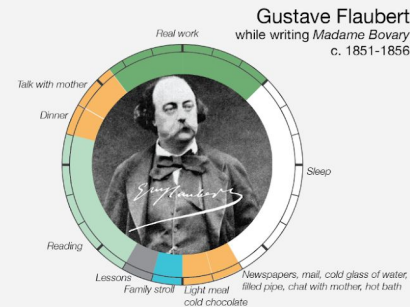
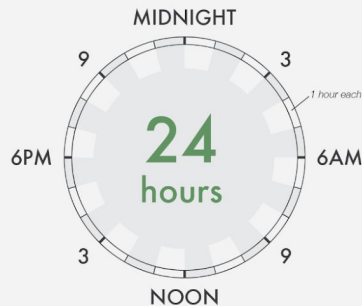
CREATIVE ROUTINES

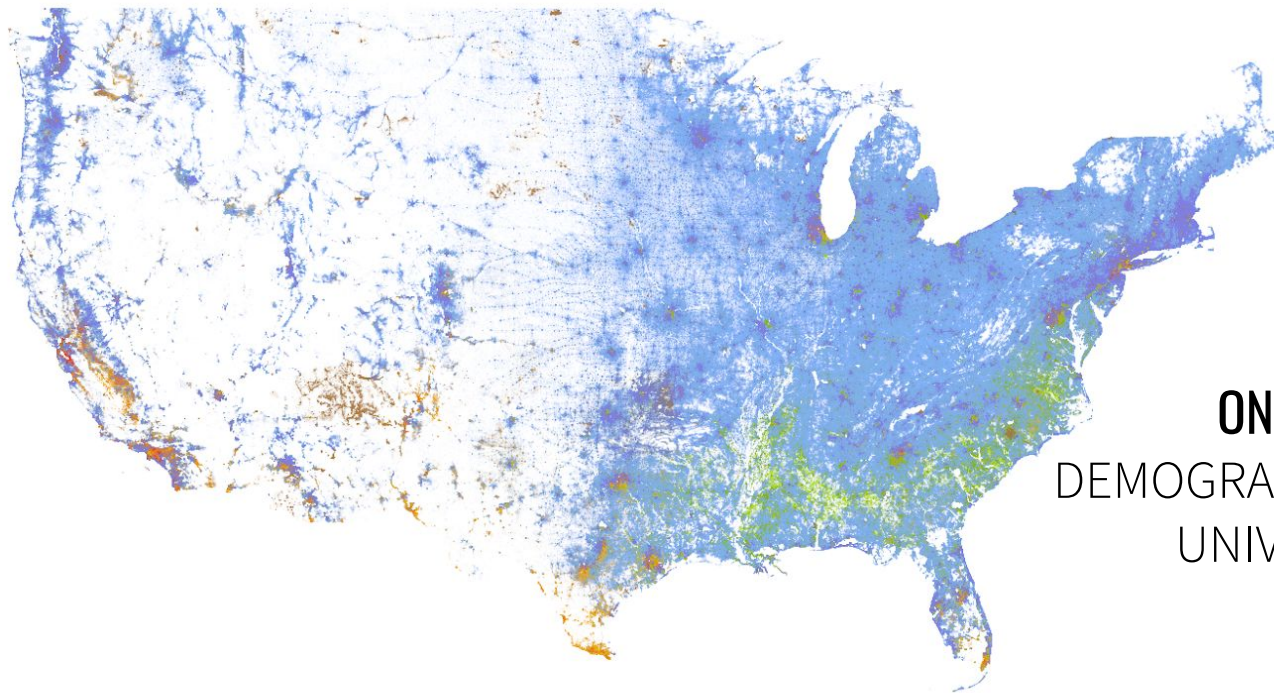
RJ ANDREWS

2014

CREATIVE ROUTINES

"In the right hands, it can be a finely calibrated mechanism for taking advantage of limited resources... a solid routine fosters a well-worn groove for one's mental energies...." -Mason Currey, author of the inspiring book, *DAILY RITUALS*





MAP

ONE PERSON, ONE DOT

DEMOGRAPHICS RESEARCH GROUP

UNIVERSITY OF VIRGINIA

2010

PICKING THE RIGHT CHART TYPE



ACCURACY

CORRECT CONCLUSION

- ▶ Start with Bars
- ▶ Avoid Circles
- ▶ Guide Inferences



LEGIBILITY

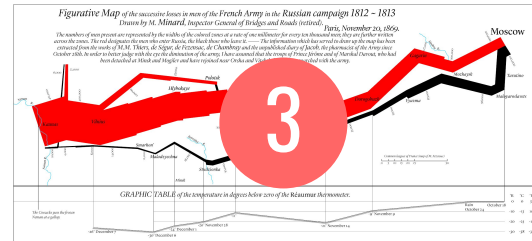
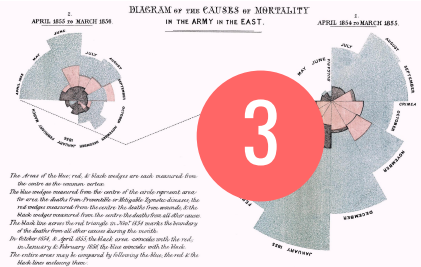
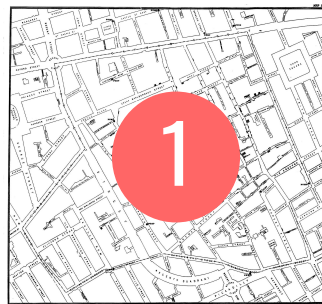
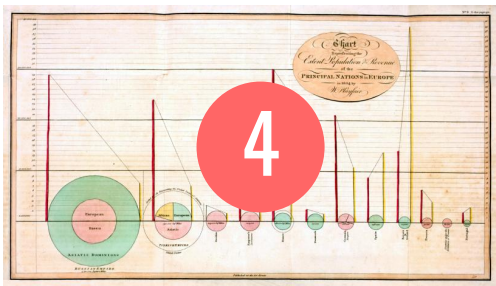
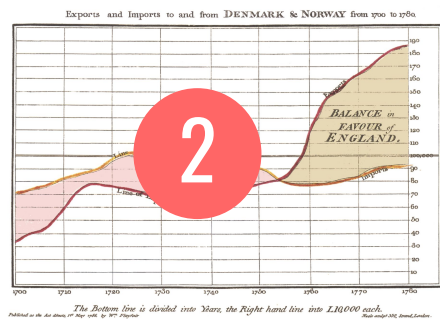
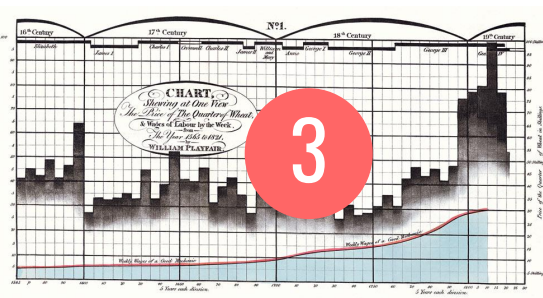
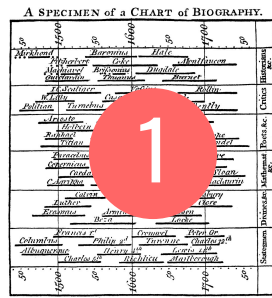
EASY TO READ

- ▶ 1-5 Colors
- ▶ Avoid Overplotting
- ▶ Device Appropriate



AUDIENCE

COMPATIBLE GOALS



THE HISTORY OF THE NFL

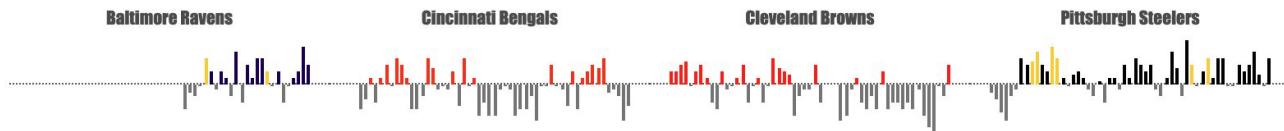
Seasons above or below .500 during the Super Bowl era 1966-2020. Gold represents Super Bowl win.

Hover over each bar to see detailed info from each season.

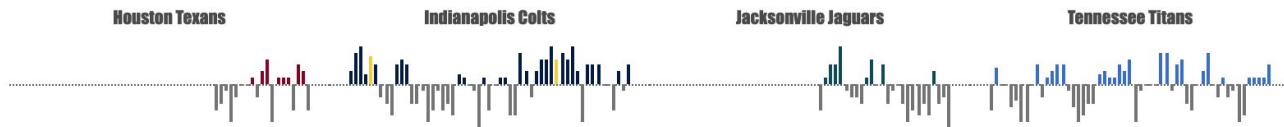
AFC East



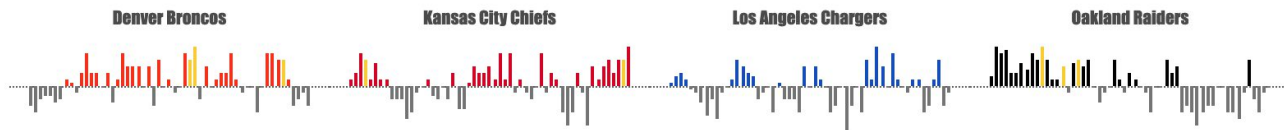
AFC North



AFC South



AFC West



SMALL MULTIPLES

THE HISTORY OF THE NFL

MATT CHAMBERS

2020

THE AGE of BORDERS

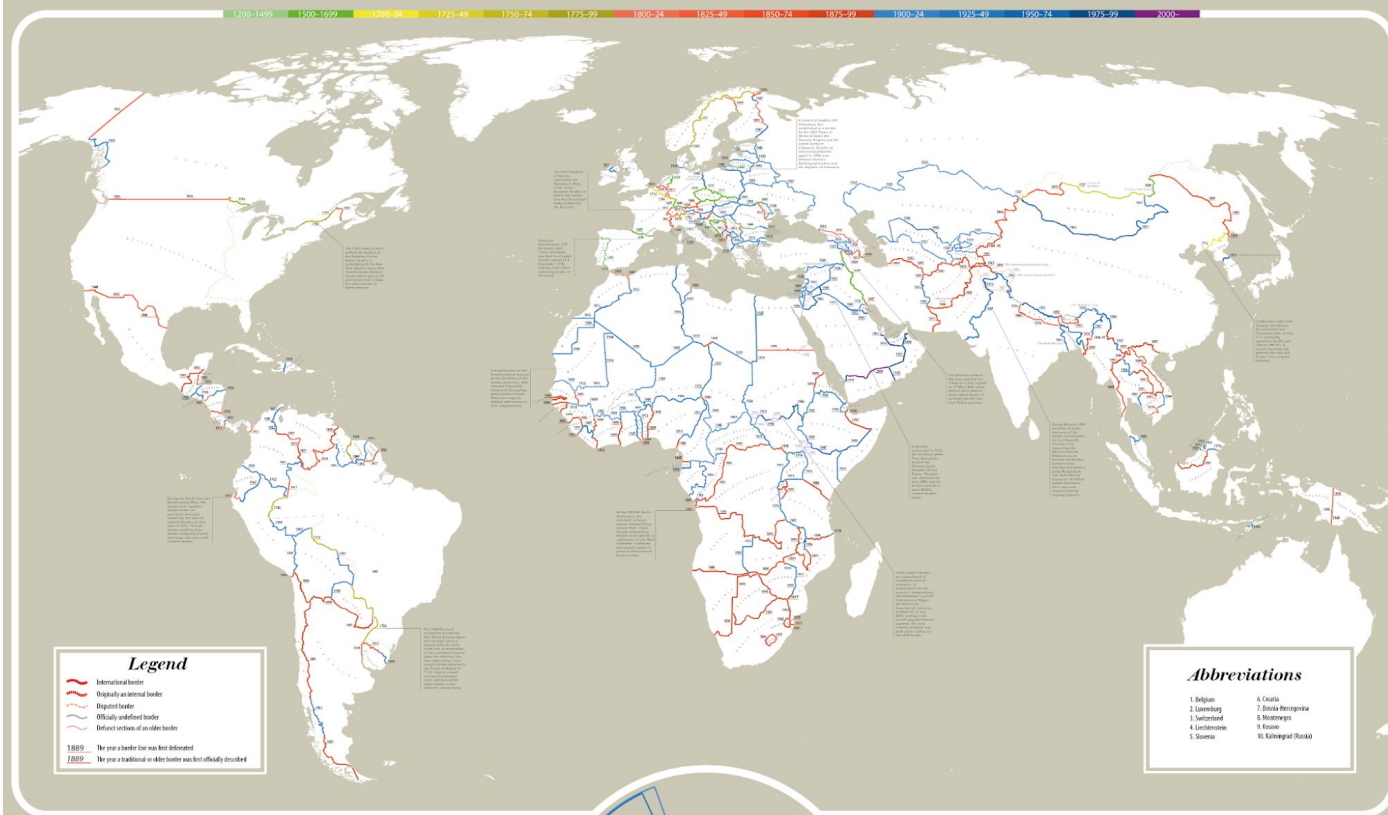
When were the world's current borders first defined?

MAP

THE AGE OF BORDERS

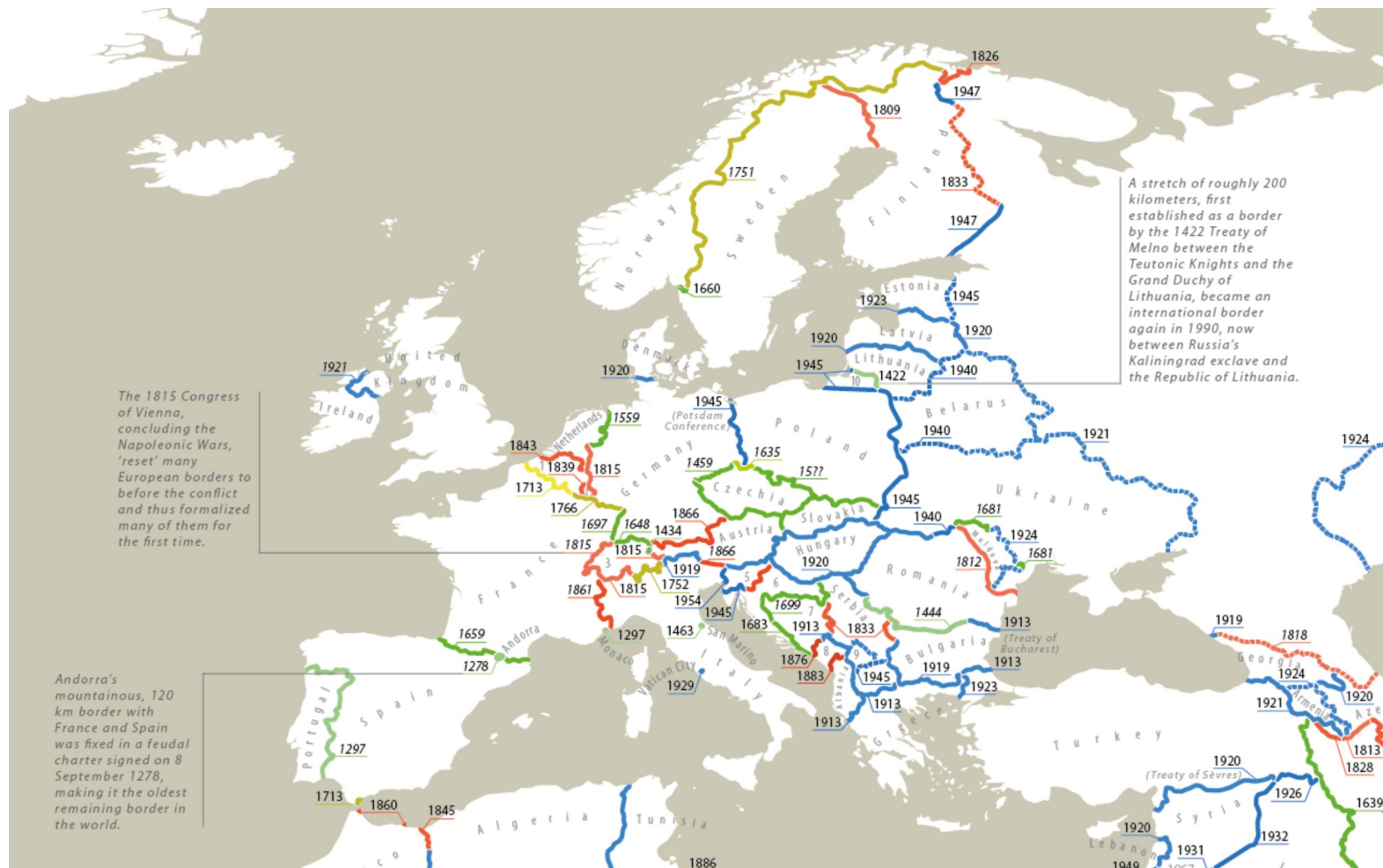
PISSEGURI82

2018



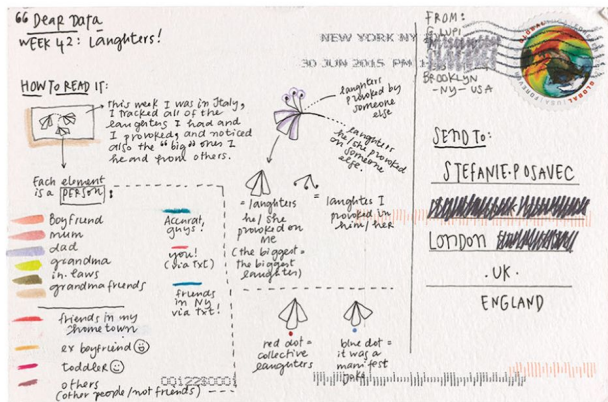
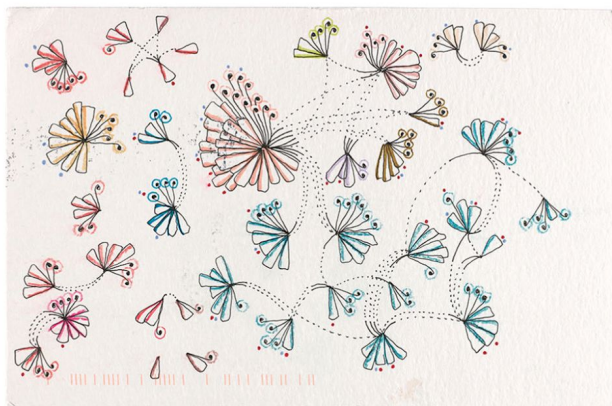
Average border age by region:

Borders younger than 100 years (33,6%):



GIORGIA

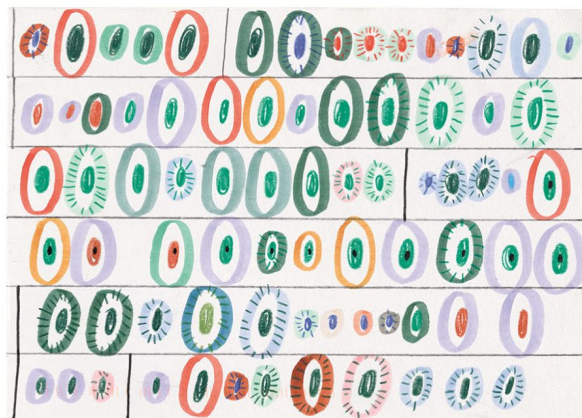
week forty-two



When data-gathering gets in the way: Giorgia laughs and then has to report it. So, is she fully enjoying her cheerful moments as they pop up?

a week of laughters

Stefanie



Stefanie was banned by her husband from gathering data at her birthday dinner in a posh restaurant (for obvious reasons). Hence the "data void".

QUANTIFIED SELF

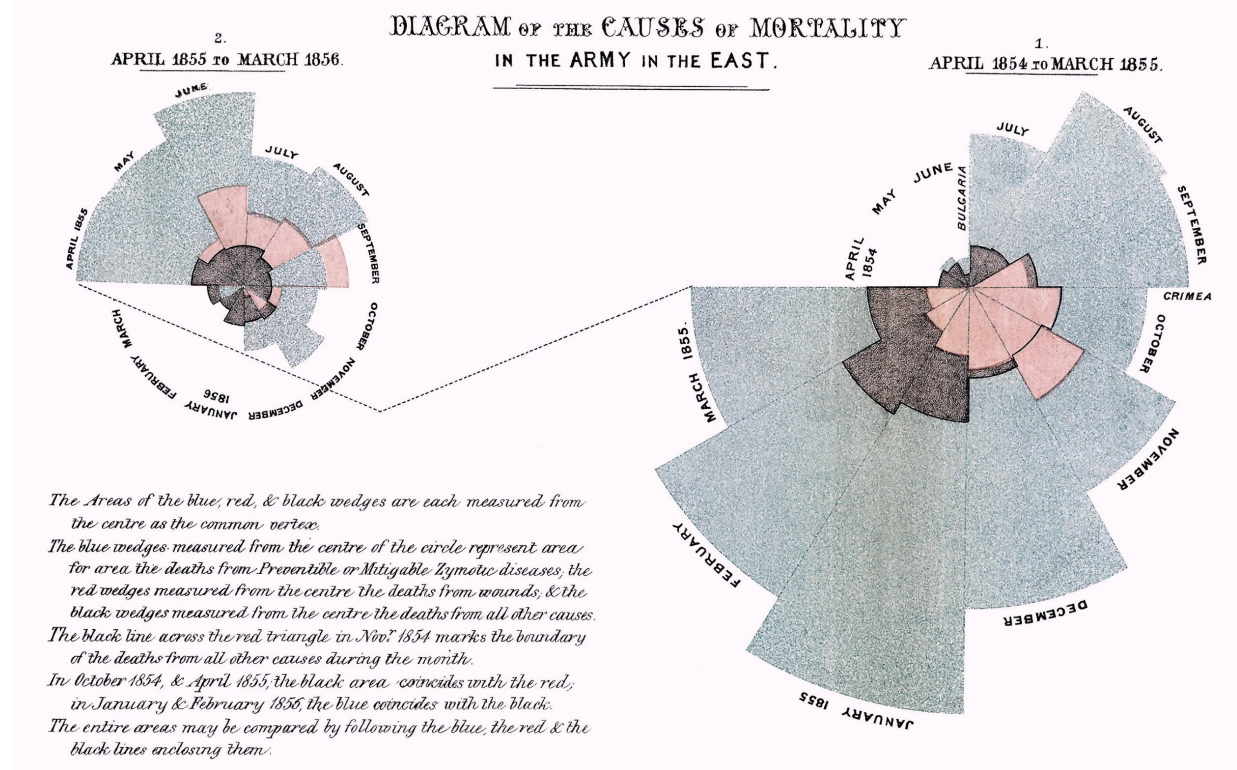
A WEEK OF LAUGHS
 GIORGIA LUPI &
 STEFANIE POSAVEC
 2015

ROSE GRAPH

CAUSES OF MORTALITY

FLORENCE NIGHTINGALE

1858





MAP

ONE PERSON, ONE DOT

DEMOGRAPHICS RESEARCH GROUP

UNIVERSITY OF VIRGINIA

2010

THE HISTORY OF THE NFL

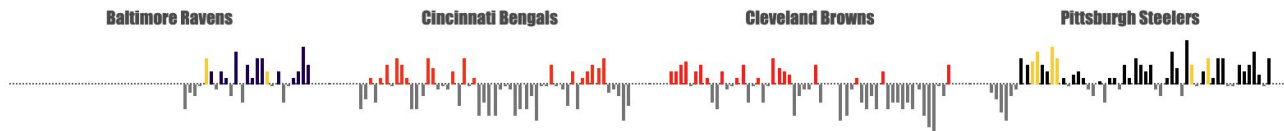
Seasons above or below .500 during the Super Bowl era 1966-2020. Gold represents Super Bowl win.

Hover over each bar to see detailed info from each season.

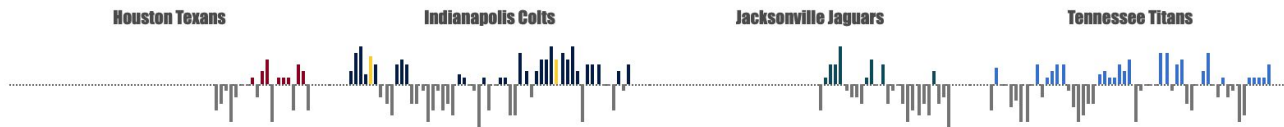
AFC East



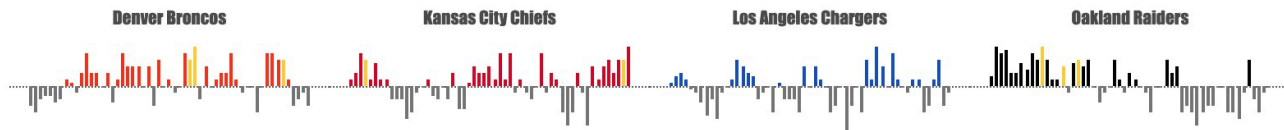
AFC North



AFC South



AFC West



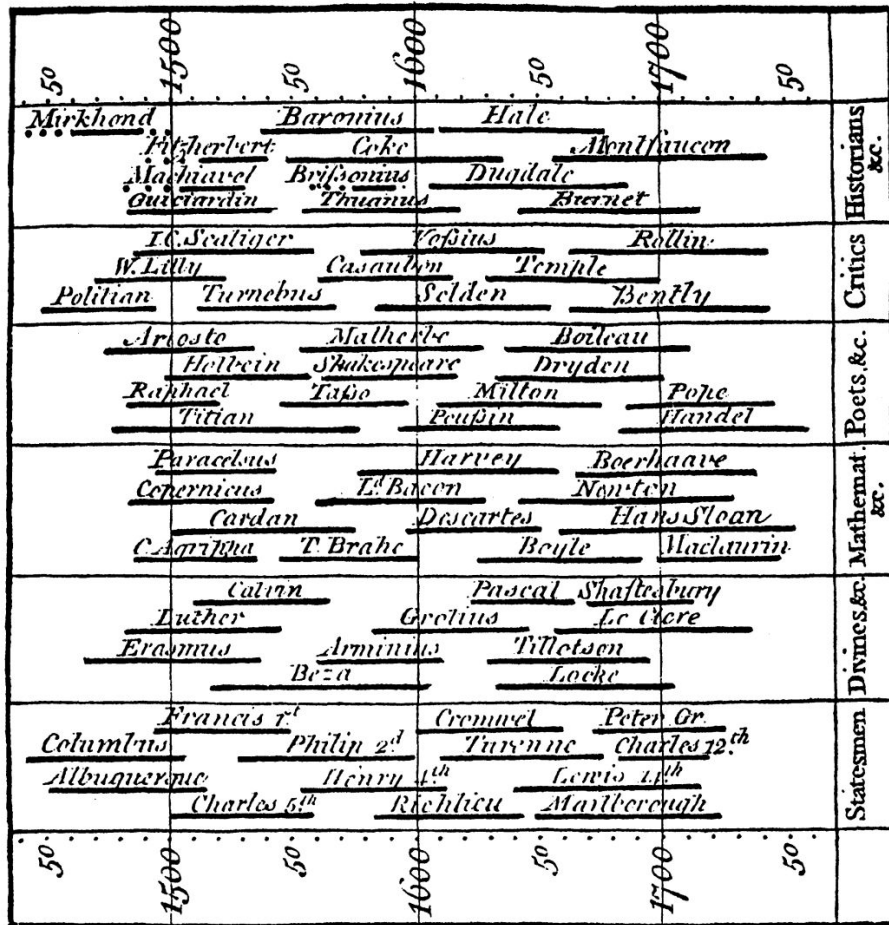
SMALL MULTIPLES

THE HISTORY OF THE NFL

MATT CHAMBERS

2020

A SPECIMEN of a CHART of BIOGRAPHY.



J. Priestley L.L. D. inv. et delin.

TIMELINE

A CHART OF BIOGRAPHY

JOSEPH PRIESTLEY

1765

PICKING THE RIGHT CHART TYPE



ACCURACY

CORRECT CONCLUSION

- ▶ Start with Bars
- ▶ Avoid Circles
- ▶ Guide Inferences



LEGIBILITY

EASY TO READ

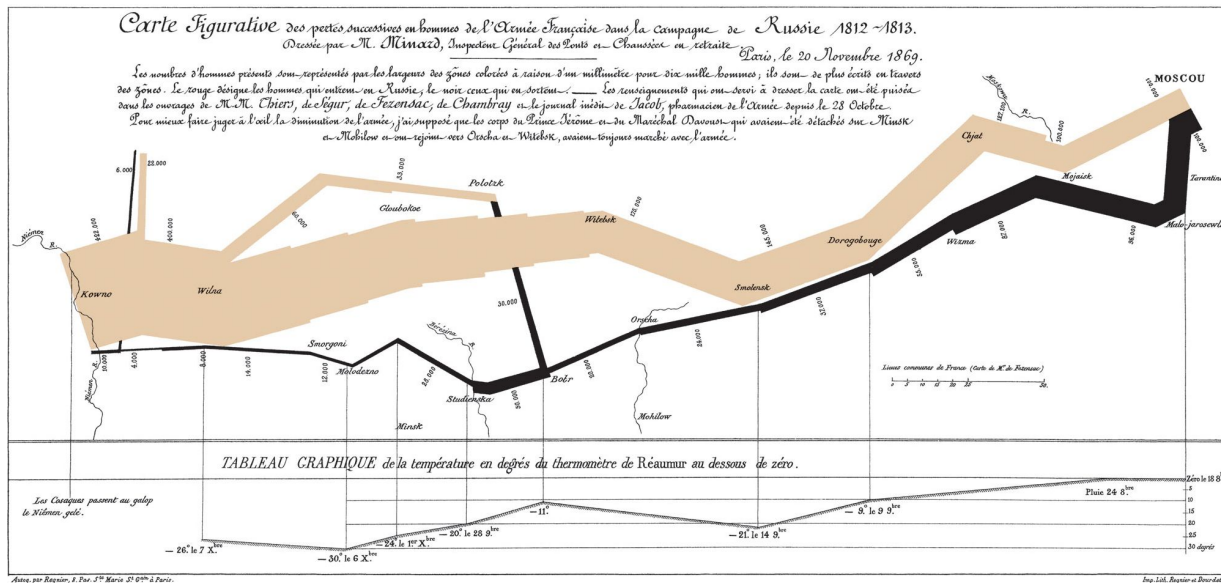
- ▶ 1-5 Colors
- ▶ Avoid Overplotting
- ▶ Device Appropriate



AUDIENCE

COMPATIBLE GOALS

- ▶ Available Time
- ▶ Prerequisites
- ▶ Art v. Precision



FLOW CHART

SUCCESSIVE LOSSES IN MEN OF THE FRENCH ARMY IN THE CAMPAIGN OF RUSSIA

CHARLES MINARD

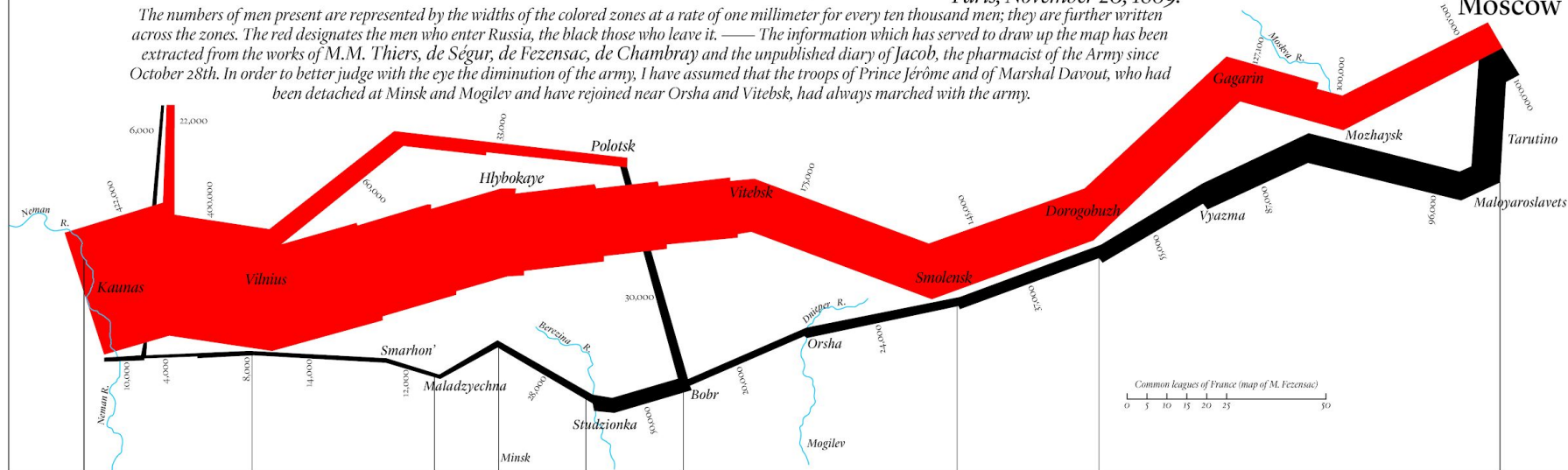
1869

Figurative Map of the successive losses in men of the French Army in the Russian campaign 1812 ~ 1813

Drawn by M. Minard, Inspector General of Bridges and Roads (retired).

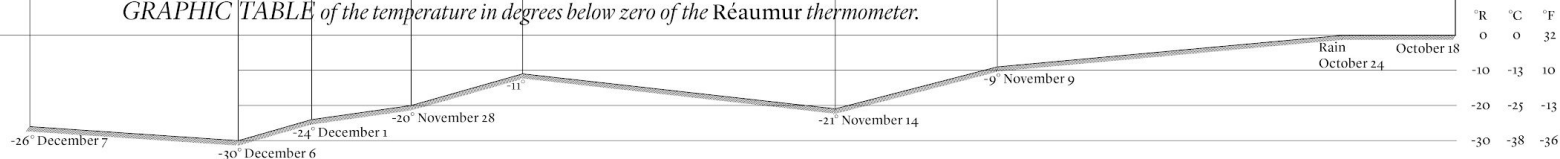
Paris, November 20, 1869.

The numbers of men present are represented by the widths of the colored zones at a rate of one millimeter for every ten thousand men; they are further written across the zones. The red designates the men who enter Russia, the black those who leave it. — The information which has served to draw up the map has been extracted from the works of M.M. Thiers, de Ségur, de Fezensac, de Chambray and the unpublished diary of Jacob, the pharmacist of the Army since October 28th. In order to better judge with the eye the diminution of the army, I have assumed that the troops of Prince Jérôme and of Marshal Davout, who had been detached at Minsk and Mogilev and have rejoined near Orsha and Vitebsk, had always marched with the army.



GRAPHIC TABLE of the temperature in degrees below zero of the Réaumur thermometer.

The Cossacks pass the frozen Neman at a gallop.

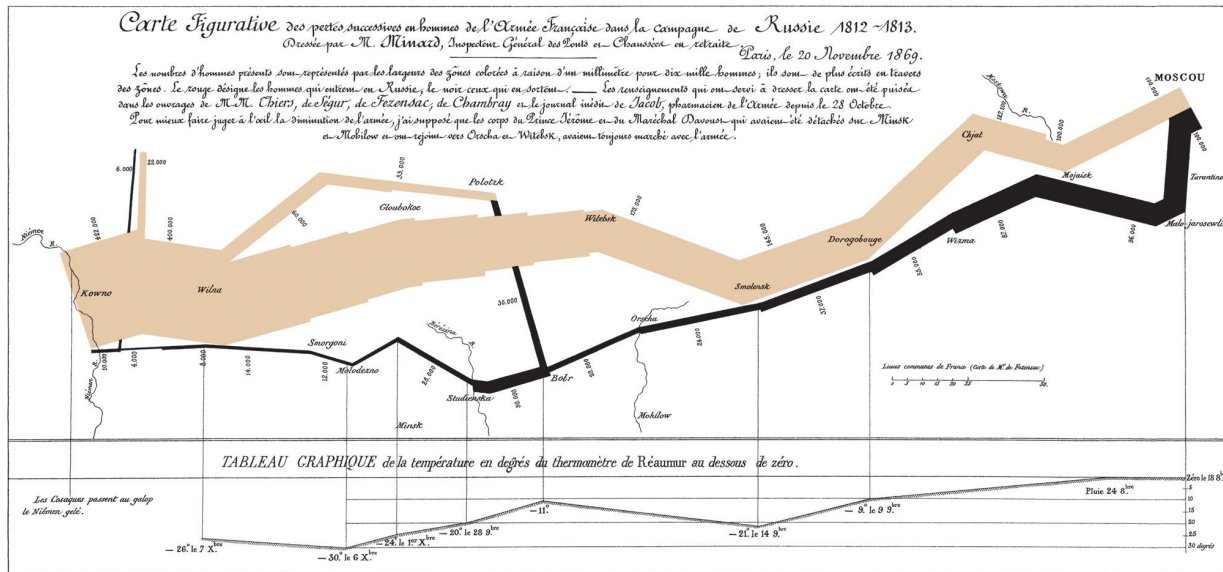


Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.

Revisée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite. Paris le 20. Novembre 1864.

Les nombres d'hommes présents sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes; ils sont de plus écrits en lettres des zones. Le rouge désigne les hommes qui entrent en Russie, le noir ceux qui en sortent. — Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M. M. Chiers, de Ségur, de Fezensac, de Chambray et le journal intime de Jacob, pharmacien de l'Armée depuis le 28 Octobre.

Tout mieux fait juger à l'œil la diminution de l'armée, j'ai supposé que ce corps du 2^e escadron devenu est au Maréchal Davout, qui avaien-t été détachés du 1^{er} Minsk et Mobilow et ont rejoint vers Orsha et Witebsk, avien-t toujours marché avec l'armée.



Autog. par Regnier, S. Par. S^{te} Marie S^{te} G^{de} à Paris.

Imp. Lith. Regnier et Doucet

FLOW CHART

SUCCESSIVE LOSSES IN MEN OF THE FRENCH ARMY IN THE CAMPAIGN OF RUSSIA

CHARLES MINARD

1869

MINI ACTIVITY | QUANTIFIED SELF

WHAT YOU NEED

- ▶ **Drawing surface**
Something you can draw on. This can be just a piece of paper, a white board, or even a digital tablet.
- ▶ **Writing utensil**
A single pen or pencil will do just fine. You can also mix up the colors and style if you'd prefer.

WHAT TO DO

- ▶ **1) Pick a dataset**
This can be anything related to you (i.e., your physical environment, digital history, time.) This can be data you actually have or would like to have.
- ▶ **2) Create a sketch**
Create a sketch (or several!) experimenting with how you might visualize this data. This doesn't have to be strictly accurate. Approximations are great. (And don't worry, this is just for you!)

ERIN WALDRON FROM DATA DOZEN · CONTACT@DATADOZEN.COM · 913-303-1125

THANK YOU!

WWW.DATADOZEN.COM

