

Simpson's Biodiversity Index Calculator

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
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Summary / Results

Total number of individuals (N)	0	This is the total number of animals/organisms counted.
Total species entered	0	This is how many different species have been listed.
Sum of n(n - 1)	0	This is the total of Column D.
Simpson's Index (D)	Enter at least 2 individuals	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)		Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)		Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator Tom's Talking Reptiles

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
rhino iquana	1	0	0	she got gifted an award from sir david attabrough
milksnake	1	0	0	
twanises beauty snake	1	0	0	
cornsnakes	3	2	6	
blue tongue skink	1	0	0	
gargoyl gekos	2	1	2	
creasted gekos	2	1	2	
leopard geko	1	0	0	
bearded dragon lizard	1	0	0	
mexican black kingsnake	1	0	0	
burmese python	1	0	0	
royal pythons	2	1	2	
rainbow boaconstrictor	1	0	0	
boa constrictors	2	1	2	
cornsnakes	2	1	2	

Summary / Results

Total number of individuals (N)	22	This is the total number of animals/organisms counted.
Total species entered	15	This is how many different species have been listed.
Sum of n(n - 1)	16	This is the total of Column D.
Simpson's Index (D)	0.0346	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.9654	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	28.8750	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator Living things

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

[Our Animals](#) | [Animal Experiences](#) | [Living Things](#)

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
Australian Tree Frog	2	1	2	
Cane toads	1	0	0	
leopard gekos	2	1	2	
bearded dragon lizard	1	0	0	
frilled lizard	1	0	0	
corn snake	1	0	0	

Summary / Results

Total number of individuals (N)	8	This is the total number of animals/organisms counted.
Total species entered	6	This is how many different species have been listed.
Sum of n(n - 1)	4	This is the total of Column D.
Simpson's Index (D)	0.0714	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.9286	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	14.0000	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator Animal Cwtch

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

[Animal Ambassadors - Animal Cwtch](#)

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
Red footed tortoise	2	1	2	
Blue tongue skink	2	1	2	
Leachianus gecko	1	0	0	
royal python	4	3	12	
boa constrictor	2	1	2	
black and white tegu	1	0	0	
legless lizard	1	0	0	
bearded dragons	3	2	6	
tortise	2	1	2	
stiply milksnake	1	0	0	
burrowing sand boa	1	0	0	
peters banded snake	1	0	0	
western hog nose	1	0	0	

Summary / Results

Total number of individuals (N)	22	This is the total number of animals/organisms counted.
Total species entered	13	This is how many different species have been listed.
Sum of n(n - 1)	26	This is the total of Column D.
Simpson's Index (D)	0.0563	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.9437	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	17.7692	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator: The Reptile Academy

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
Ackie monitor	1	0	0	
Savannah monitor	2	1	2	
Royal python	2	1	2	
Corn snake	1	0	0	
Kenyan Zebra Skinks	30	29	870	
Sudan plates lizard	2	1	2	
Red footed tortoise	6	5	30	
jackson chomelions	2	1	2	
black and white tegus	2	1	2	
giant african bullfrog	1	0	0	
green iquana	2	1	2	
lachianus geko	2	1	2	
madagascan giant day geko	1	0	0	
mangrove monitor	1	0	0	
sailfin dragon	1	0	0	
veiled chameleon	1	0	0	
african egg eating snake	1	0	0	
milk frogs	3	2	6	
bearded dragong	1	0	0	
brazilian rainbow boa	1	0	0	
burmese python	1	0	0	
cane toads	3	2	6	
chinese water dragon	1	0	0	
common boa constrictor	1	0	0	
crested geko	3	2	6	
euopean green toads	4	3	12	
gargoyle gekos	2	1	2	
golden mantella frogs	2	1	2	
leapord gekos	4	3	12	
leapord tortoises	4	3	12	
mississippi map turtle	1	0	0	
musk turtles	2	1	2	
morine toads	4	3	12	

Summary / Results

Total number of individuals (N)	95	This is the total number of animals/organisms counted.
Total species entered	33	This is how many different species have been listed.
Sum of n(n - 1)	986	This is the total of Column D.
Simpson's Index (D)	0.1104	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.8896	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	9.0568	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator : Marwell Zoo

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
aquatic caecilian	15	14	210	
european green toads	4	3	12	
white tree frogs	5	4	20	
trinidad poison dart frog				
roti island snake necked turtle	1	0	0	
egyptian tortoise	2	1	2	
algerian sprung thighed tortoise	2	1	2	
burmese mountain tortoise	5	4	20	
crocodile monitor	4	3	12	
emerald tree monitor	1	0	0	
gila monster	2	1	2	
rio fuere bearded lizard	1	0	0	
egyptian spiny tailed lizard	2	1	2	
rough scaled plated lizard	1	0	0	
cayman lion lizards	3	2	6	
sand lizard				
royal python	5	4	20	
madagascar tree boa	0	-1	0	
starred agama	11	10	110	
baker's spiny tailed iguana	1	0	0	
casque headed iguana				
prehensile tailed skink				
philippine skink				
ocelated bronze skink				

Summary / Results

Total number of individuals (N)	65	This is the total number of animals/organisms counted.
Total species entered	24	This is how many different species have been listed.
Sum of n(n - 1)	418	This is the total of Column D.
Simpson's Index (D)	0.1005	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.8995	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	9.9522	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator: London Zoo

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
midwife toad	14	13	182	
mallorcan midwife toad	82	81	6642	
olive midwife toad	11	10	110	
chinese great salamander	3	2	6	
oriental fire bellied toad	25	24	600	
dyeing poison dart frog	9	8	72	
sardinian brook salamander	26	25	650	
congo caecilian	7	6	42	
newt	6	5	30	
mountain chicken frog	18	17	306	
emperor spotted newt	15	14	210	
dawins frog	79	78	6162	
lake titicaca frog	217	216	46872	
chapa bug eyed frog	17	16	272	
cayene caecilian	1	0	0	
aquatic caecilian	13	12	156	
lake oku clawed frog	35	34	1190	
dumerils ground boa	1	0	0	
ethiopian mountain adder	3	2	6	
mcCords snake necked turtle	2	1	2	
tortoises	3	2	6	
red footed tortoises	5	4	20	
emrald tree boa	2	1	2	
philippine crocodile	1	0	0	
panther chameleon	1	0	0	
rhinoceros ratsnake	3	2	6	
round island skink	6	5	30	
terquoise dwarf geko	6	5	30	
alligator snapping turtle	2	1	2	
vietnames pond turtle, anna pond turtle	3	2	6	
king cobra	1	0	0	
red cornsnake	1	0	0	
chinese big headed turtle	10	9	90	
mangshan pitviper	3	2	6	
chinese crocodile lizard	3	2	6	
lizard	5	4	20	
mindanao water monitor	1	0	0	
komodo dragon/ora	1	0	0	
blue tree monitor	1	0	0	

Summary / Results

Total number of individuals (N)	642	This is the total number of animals/organisms counted.
Total species entered	39	This is how many different species have been listed.
Sum of n(n - 1)	63734	This is the total of Column D.
Simpson's Index (D)	0.1549	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.8451	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	6.4569	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator: Edinburgh Zoo

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
pancake tortoise	3	2	6	
henkles leaf tailed gekos	5	4	20	
blue tongued skink	1	0	0	
argentine black and white tegu	0	-1	0	
royal python	1	0	0	
taiwan beauty snake	1	0	0	
nelsons milksnake	1	0	0	
california kingsnake	0	-1	0	
cornsnake	4	3	12	
blue poison dart frog	4	3	12	
phantasmal poison dart frog	0	-1	0	
whiole tree frogs	3	2	6	
tridad poison dart frog	22	21	462	

Summary / Results

Total number of individuals (N)	45	This is the total number of animals/organisms counted.
Total species entered	13	This is how many different species have been listed.
Sum of n(n - 1)	518	This is the total of Column D.
Simpson's Index (D)	0.2616	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.7384	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	3.8224	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index Calculator : Chester Zoo

Student instructions: Enter each species in Column A and the number of individuals in Column B. The spreadsheet will calculate the index automatically.

Species name	Number of individuals (n)	n - 1	n(n - 1)	Notes
radiated tortoise	13	12	156	
ploughshare tortoise	3	2	6	
african pancake tortoise	7	6	42	
asian brown tortoise	4	3	12	
spur thighed tortoise	1	0	0	
malaysian painted river terrapin	5	4	20	
chinese three stripedbox turtle	4	3	12	
zhous box turtle	3	2	6	
black breasted leaf turtle	2	1	2	
philippine pond turtle	2	1	2	
madagascar big headed turtle	3	2	6	
tuatara	8	7	56	
horn headed lizard	6	5	30	
green crested geko	9	8	72	
malayan sail finned lizard	1	0	0	
arboreal agamid lizard	2	1	2	
starred agama	8	7	56	
egyptian spiny tailed lizard	4	3	12	
gey's spiny tailed lizard	10	9	90	
moroccan spiny tailed lizard	1	0	0	
parsons chameleon	10	9	90	
oustalets chameleon	1	0	0	
jamaican anole	74	73	5402	
cone headed iguana	5	4	20	
madagascar swift	3	2	6	
tokay gecko	21	20	420	
turquoise dwarf gecko	8	7	56	
namib web foot gecko	2	1	2	
madagacsar ground gecko	0	-1	0	
flat tailed day gecko	1	0	0	
madagascar day gecko	22	21	462	
pronks day gecko	4	3	12	
middle eastern short fingered gecko	6	5	30	
wonder gecko	6	5	30	
henkels leaf tail gecko	31	30	930	
girdled lizard	17	16	272	
western girdled lizard	3	2	6	
southeastern girdled lizard	2	1	2	
sand lizard	29	28	812	
phillipene tree skink	17	16	272	
bermuda skink	35	34	1190	
common sun skink	33	32	1056	
caiman lizard	0	-1	0	
giant gallwasp	0	-1	0	
komodo dragon	2	1	2	
blue tree monitor	1	0	0	
quince monitor	1	0	0	
chinese crocodile lizard	9	8	72	
reticulated python	1	0	0	
boelins python	1	0	0	
emerald tree boa	2	1	2	
taiwanise beauty snake	2	1	2	
anguilla racer	4	3	12	
spitting cobra	3	2	6	
pitviper	2	1	2	
mountain adder	3	2	6	
gaboon viper	3	2	6	
common adder	4	3	12	
tentacled snake	31	30	930	
gharial	2	1	2	
caiman	2	1	2	
caecilian	10	9	90	
salamander	2	1	2	
newt	170	169	28730	
asain giant toad	13	12	156	
yellow spotted tree toad	24	23	552	
dyeing poison dart frog	41	40	1640	
golden dart frog	24	23	552	
harlequin frog	2	1	2	
strawberry poison frog	49	48	2352	
mimic poison frog	4	3	12	
poison dart frog	13	12	156	
marathon poison frog	40	39	1560	
imbabura tree frog	15	14	210	
whitebelly reed frog	86	85	7310	
mountain chicken frog	5	4	20	
lake titcata frog	22	21	462	
golden mantella	185	184	34040	
surinam toad	12	11	132	
mao son frog	1	0	0	
african bull frog	1	0	0	
splash frog	78	77	6006	
indonesian tree frog	28	27	756	
fea tree frog	2	1	2	
chapa frog	4	3	12	
dart frog	293	292	85556	
tree frog	6	5	30	

Summary / Results

Total number of individuals (N)	499	This is the total number of animals/organisms counted.
Total species entered	50	This is how many different species have been listed.
Sum of n(n - 1)	11726	This is the total of Column D.
Simpson's Index (D)	0.0472	Lower values usually mean higher diversity.
Simpson's Index of Diversity (1 - D)	0.9528	Closer to 1 = higher biodiversity.
Simpson's Reciprocal Index (1 / D)	21.1924	Higher values suggest greater diversity.

How to interpret the result

0 to 0.3	Low diversity
0.3 to 0.7	Moderate diversity
0.7 to 1.0	High diversity

Simpson's Biodiversity Index – Student Guide

What is it?	Simpson's Biodiversity Index is a way of measuring biodiversity. It looks at both how many species there are and how many individuals there are of each species.
What is it used for?	It is used to compare biodiversity between habitats, animal collections, ponds, fields, woodland areas, or different survey sites.
Key idea	A place with lots of species and an even spread of individuals usually has higher biodiversity.
Step 1	Write down each species name.
Step 2	Count the number of individuals of each species. This number is called n.
Step 3	For each species, calculate $n - 1$.
Step 4	Multiply n by $n - 1$. This gives $n(n - 1)$.
Step 5	Add all the $n(n - 1)$ values together.
Step 6	Use the formula $D = \frac{\sum n(n - 1)}{N(N - 1)}$.
Step 7	Calculate $1 - D$. A value closer to 1 means higher biodiversity.

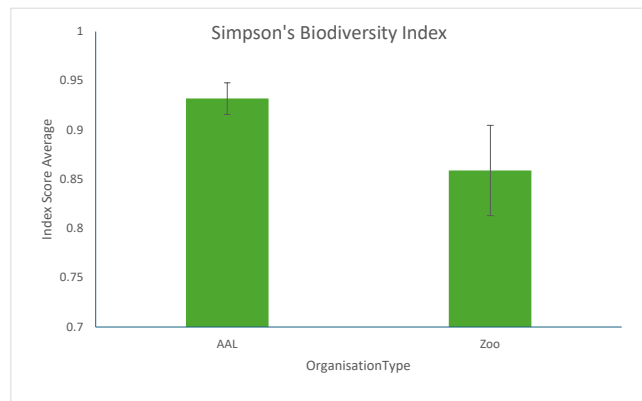
Symbol	Meaning
n	Number of individuals of one species
N	Total number of individuals counted
Σ	The total sum after adding values together

Establishment type	Biodiversity Index			
AAL	0.889585666	0.965368	0.928571	0.943723
Zoo	0.899519231	0.845126	0.738384	0.952813

AAL	Zoo
0.889585666	0.899519
0.965367965	0.845126
0.928571429	0.738384

0.943722944 0.952813

average	AAL	Zoo
	0.931812001	0.858961
	0.08	0.08



average

average

Group	Mean Simpson's Index	Sample SD	Standard Error of the Mean (SEM)
AAL Organisations	0.9318	0.0319	0.016
Zoos	0.859	0.0916	0.0458

0.074507

Using the **sample standard deviation** (denominator $n-1$) and the formula:

$$SEM = \frac{s}{\sqrt{n}}$$

Summary

AAL SEM: 0.01597 (≈ 0.016)
Zoo SEM: 0.04581 (≈ 0.046)

The AAL organisations have a much smaller SEM, indicating their Simpson's Diversity Index values are more consistent across the four collections than those of the zoos.

This indicates that:

AAL collections in your sample had a higher average Simpson's Biodiversity Index than the sampled zoos.
The **AAL collections were also more consistent**, reflected by the smaller SEM.

SEM bars don't overlap so a real difference

Take Home Messages

1. The sample of AALs have higher reptile and amphibian biodiversity than Zoos
2. AALs have a lower standard error than zoos so are more consistent with their higher biodiversity
3. The error bars do not overlap, so this shows there is a statistical difference

In future work I could do a statistical test and have an increased sample size