Web of Life: from Aardvark to Zinnia 2018

LYRICS

BIO, BIODIVERSITY
by Lauren Mayer

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
That's how everything's connected.

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
How ecosystems get protected.

VERSE 1 Altos: Within a species there can be
Genetic variability,
Evolving along the way,
To differences in their DNA.

VERSE 2 Sopranos: And within a habitat,
You may find you're looking at
Plants and creatures from A to Z,
Which is species diversity.

VERSE 3 Baritone: Habitat diversity
Means different places, you can see,
Like meadows, tundra, a pond or a reef.
There's a lot more, but we're trying to be brief!

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
That's how everything's connected.

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
How ecosystems get protected.

*[Altos, Sopranos, and Baritones repeat their
verses, this time all together!]*

Three kinds of biodiversity
That work in diff'rent ways:
Genetic, species, and ecological
So that nature stays
Soprano: In balance.

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
That's how everything's connected.

Altos: Bio, biodiversity,
Altos and Sopranos: Bio, biodiversity,
All: Bio, biodiversity,
How ecosystems get protected.
Bio, biodiversity!

EDWARD O. WILSON
by Molly Ruggles

SOPRANO/HIGH ALTO:

When Edward O. Wilson was a boy he was curious
About the bugs that he found.
Edward O. Wilson studied ants and bugs
And became highly renowned.
Edward O. Wilson started thinking deeper
Of all the bugs and beetles, fleas and ants.
Then Edward realized they were all connected,
Every single animal and all the plants.

Every living thing is a member of a species.
Every species has a role to play.
Diversity of species is the key to our survival.
Here's what Edward O would say:
We need biodiversity,
Plankton, protozoans, hippopotami, and frogs.
All over the whole wide world,
From coconuts to fungi, from octopi to dogs.

Edward O. Wilson noticed something peculiar
About the islands and mountain tops.
When natural communities are isola-a-ted,
The growth of the species slows or stops.
Robert E. MacArthur made a brand new concept
Called insular biogeography.
Rates of extinction are connected to surroundings.
MacArthur and Wilson both agree.

Edward O. Wilson tried to understand the problem.
Extinction rates: what makes them rise?
He found that extinction invariably increases
When habitats decrease in size.
Edward O. Wilson suggested a solution
To save the planet and its natural worth:
We must dedicate half of the planet to nature,
Giving back to nature half the earth.

Every living thing is a member of a species.
Every species has a role to play.
Diversity of species is the key to our survival.
Here's what Edward O would say:
We need biodiversity,
We need a rich array of life of ev'ry kind.
We need biodiversity,
All the beings of the Earth are profoundly intertwined.

We need biodiversity.
We need a global garden with many living things.
We need biodiversity.
The Earth will survive from the healing that it brings.
Earth will survive from the healing that it brings.
Biodiversity...

LOW ALTO/TENOR/BASS:

Dum, bah dum, bah dum, bah dum,
Bah dum...
Dum, bah dum, bah dum, bah dum,
Bah dum, highly renowned.
Edward O. Wilson started thinking deeper
Of all the bugs and beetles, fleas and ants.
Then Edward realized they were all connected,
Every single animal and all the plants.

...
Every species has a role to play.
...
Here's what Edward O would say:
Ooo...
Plankton, protozoans, hippopotami, and frogs.
Ooo...
Coconuts to fungi, from octopi to dogs.

Dum, bah dum, bah dum, bah dum,
Bah dum, mountain tops.
Dum, bah dum, bah dum, bah dum,
Bah dum, slows or stops.
Robert E. MacArthur made a brand new concept
Called insular biogeography.
Rates of extinction are connected to surroundings.
MacArthur and Wilson both agree.

Dum, bah dum, bah dum, bah dum,
Bah dum, makes them rise?
Dum, bah dum, bah dum, bah dum,
Bah dum, decrease in size.
Edward O. Wilson suggested a solution
To save the planet and its natural worth:
We must dedicate half of the planet to nature,
Giving back to nature half the earth.

Every living member of a species,/Every living thing,
Every species has a role to play.
Diversity's the key to our survival./Diversity is.
Here's what Edward O would say:
Ooo...
We need a rich array of life of ev'ry kind.
Ooo...
All the beings of the Earth are profoundly intertwined.

Ooo...
We need a global garden with many living things.
Aahh...
The Earth will survive from the healing that it brings.
...
Ooo...

TAXONOMY
by David Haines

Kingdom, Phylum, Class and Order,
Family, Genus, and Species last.
Taxonomy sorts out all life on Earth,
In the present day, in the future, and all through the past.

Five Kingdoms form life's family tree:
Animals and fungi and plants make three.
Archaebacteria thrive on extremes.
Eubacteria don't, it seems.

Kingdom, Phylum, Class and Order,
Family, Genus and Species last.
Taxonomy sorts out all life on Earth,
In the present day, in the future, and all through the past.

Phyla these Kingdoms split in smaller bits.
Each Phylum only contains within it
Things which share one basic body plan.
If you've a spine, you're a Chordate like man.

Kingdom, Phylum, Class and Order,
Family, Genus, and Species last.
Taxonomy sorts out all life on Earth,
In the present day, in the future, and all through the past.

Classes will take us up one further rung.
Mammals, for example, all suckle their young.
Orders are the next category in line.
Carnivores eat meat nearly all of the time.

Kingdom, Phylum, Class and Order,
Family, Genus, and Species last.
Taxonomy sorts out all life on Earth,
In the present day, in the future, and all through the past.

Members of families all similar look.
All cats belong in the Felidae book.
Genera give us our first Latin name.
Species give the second in the taxonomy game.

Kingdom – Animal, Phylum – Chordate,
Class – Mammal and Order – Primate,
Family – Hominid, [and] Genus – Homo.
Homo Sapiens, that's the species of every human that you know.
Homo Sapiens, that's the species of every human that you know.

EXTREMOPHILES
by David Haines

Extremophiles, extremophiles, we live to the extreme.
Hot, cold, acidic, old, we're stranger than we seem.
Extremophiles, extremophiles, high pressure is our game.
Salt, alkali our joy, extremophiles our name,
Extremophiles our name.

Deep beside volcanic vents, undersea down several miles,
Thriving on the heat and pressure, we are happy thermophiles,
We are happy thermophiles.

Extremophiles, extremophiles, we live to the extreme.
Hot, cold, acidic, old, we're stranger than we seem.
Extremophiles, extremophiles, high pressure is our game.
Salt, alkali our joy, extremophiles our name,
Extremophiles our name.

Bee in amber fossilized twenty-five million years ago,
Us bacteria in its gut, we're the oldest life, you know.
We're the oldest life, you know.

Extremophiles, extremophiles, we live to the extreme.
Hot, cold, acidic, old, we're stranger than we seem.
Extremophiles, extremophiles, high pressure is our game.
Salt, alkali our joy, extremophiles our name,
Extremophiles our name.

In the blizzards and the ice, buried deep in snowy piles,
Thriving on the freezing cold, we are happy psychrophiles,
We are happy psychrophiles.

FINAL REFRAIN (TREBLE):
Extremophiles, extremophiles, we live to the extreme.
Hot, cold, acidic, old, we're stranger than we seem.
Extremophiles, extremophiles, high pressure is our game.
Salt, alkali our joy, extremophiles our name,
Extremophiles our name,
Extremophiles our name, extremophiles our name.

FINAL REFRAIN (BARITONE):
Extremophiles, extremophiles, we live to the extreme.
Hot, cold, acidic, old, we're stranger than we seem.
Extremophiles, extremophiles, high pressure is our game.
Salt, alkali our joy, extremophiles our name,
Extremophiles our name, our name,
Extremophiles our name, our name, extremophiles our name.

BACTERIA
by David Haines

What am I in truth? What am I in reality?
When only one in ten of my cells is genetically humanity?
Nine in ten of my cells, bacteria through and through.
One tenth of my weight, it's true of me and true of you, too.

Every centimeter squared of my skin
Hosts a hundred thousand bacteria living in
Luxury as they snack away
On the hundred billion skin flakes I shed each day.

Trillions more are living tucked inside.
If they left me I would die, could not survive,
Synthesize sugars that I need,
Go to war on alien microbes threatening me.

In nuclear waste, in underground oil,
In acid so strong it burns, in water so hot it boils,
Miles under the ground, miles high in the air,
Miles deep in the deepest ocean, bacteria are always there.

Oldest form of life on this old globe,
They got going more than four billion years ago.
On Earth's last day they will still be here,
When the sun engulfs the Earth in several billion years.

Soprano:
We're novices here, newcomers at life's long game.
Bacteria are here to stay until Earth's last day,
Earths's last day,
Bacteria are here till Earth's last, last day.

Alto:
We're novices here, newcomers at life's long game.
Bacteria are here to stay until Earth's last day,
Last day, last day, last day.
Bacteria are here, bacteria are here till Earth's last day.

Tenor/Bass:
We're novices here, newcomers at life's long game.
Bacteria are here to stay until Earth's last day,
Last day, Earth's last day, last day, last day.
Bacteria till Earth's last day.

INTELLIGENT SLIME MOLD
by David Haines

I'm a yellowy, slippery, slinky, spongy slime mold.
My ancestral line may be a billion years old.
Squatting in the dirt and swallowing rotten wood chips,
My favorite nosh, bacteria, or a tasty fungal spore dip.

People possibly think that I'm yuck as through the muck I slide.
While I tuck into some microbe stew, they rush too quick to decide.
I'm physarum polycephalum, single-celled protist,
Really rather bright if you will take the time to notice!

If you're planning a network of road or rail,
I can do it for you, I never fail.
Place a tasty morsel on the map for each town,
I will find the best routes along diagonal, up, or down.

Chop me up and scatter me throughout a maze,
Place agar at the start and end, I'll not be fazed.
My bits will find each other, fill the labyrinth every part,
Then shrink to trace the shortest path from end to start.
End to end to end to end to end to start.

Give me a varied selection of foods, and I will always choose
The most balanced nutritionally dish to ooze to.
When I forage, I leave a trail of translucent slime,
Then I avoid it when I hit it every subsequent time.

Talking of time, I have a kind of internal clock.
Palpitations of my cytoplasm go tick tock tick tock tick tick tock!
Do something I don't like at regular intervals through the day,
Then even when you stop, at just those times exactly, I'll turn away.

Physarum polycephalum,
I am so intelligent.
My name means "many-headed slime",
Though I've no head nor brain, and I'm
Not fungus, animal, nor plant,
Please don't presume I can't
Make good decisions, 'cause I can,
Even though I don't really understand.

In some ways, I'm as clever as you humans.
Physarum polycephalum, physarum polycephalum,
Physarum polycephalum, physarum polycephalum can!
I can, I can!

FUNGI
by David Haines

SOLO
Food gone blue and green with mold,
Dry rot, wet rot growing in old
Buildings, ancient fairy rings,
All of these are fungal things.
All of these are fungal,
    all of these are fungal things.
Blue-veined, stinky Stilton cheese,
Mycorrhizae helping trees
By growing round their rooting tips
In symbiotic relationships.
All of these are fungal,
    all of these are fungal things.
SING END OF VERSE 1 WITH CHORUS

Bread dough made with foamy yeast
Proves to twice its size at least.
Yeast makes alcohol in ale.
Too much leaves you sick and pale.
All of these are fungal,
    all of these are fungal things.
If you scratch your itchy toes,
You will spread and scatter loads
Of fungal spores around the place,
Athlete's foot will win its race.
All of these are fungal,
    all of these are fungal things.
SING END OF VERSE 2 WITH CHORUS

In his famous Petri dish,
Fleming spotted mold that killed his
Cultured germs stone dead like that,
Penicillin knocked 'em flat.
All of these are fungal,
    all of these are fungal things.
Pile up high your carrot peels,
Egg-shells, grass, left-over meals,
Fungi in your compost mound
Help to break those fibers down
All of these are fungal,
    all of these are fungal things.
SING CODA WITH CHORUS

CHORUS:
Fun- fun- fungi – fun- fun- fungi (4 times total)
All of these are fungal
Fun- fun- fungi – fun- fun- fungi (4 times total)
All of these are fungal
Fun- fun- fungi – fun- fun- fungi

END OF VERSE 1 (with soloist):
Leaf-cutter ants cut leaves
From their local plants and trees.
Cut them into tiny rounds,
Crush them, store them underground.
Ants can't digest cellulose,
So they grow a fungus on those
Leaves and eat the fungal hyphae.
Ants and fungus both do nicely.

REPEAT CHORUS

END OF VERSE 2 (with soloist):
Lichens grow most anywhere,
But don't like bad polluted air.
Deserts, mountains, hills and dales,
They're shaped like leaves, shrubs, crusts or scales.
Not just one, but two or three
Species symbiotically
Living together with equal shares,
Most are fungal-algal pairs,
Best of friends, best of friends.

REPEAT CHORUS

CODA AFTER VERSE 3:
Fungus, fungus, fungus, fungus fun, and
Fungus, fungus, fungus fun!
Fungus, fungus, fungus, fungus fun, and
Fungus, fungus, fungus fun!

ALL ABOUT PLANTS
by Lauren Mayer

We're learning all about plants and how they grow,
All about plants, there's lots to know.
Having a ball and learning all about plants.

Diff'rent parts of plants from the seeds to the root,
To the stems and leaves, the flowers and fruit.
Photosynthesis makes it a plant.
And moving on its own? A plant can't.
[spoken] Plants are sessile!

We're learning all about plants, 'cause plants are cool.
Plants can be food or used for fuel.
Having a ball and learning all about plants.

Some plants are herbs and some are trees,
Some are grasses that blow in the breeze,
Some are creepers that look like rugs,
Some are carnivorous and they eat bugs.
[spoken] Even rodents!

We're learning all about plants, and we know there are
Over two hundred thousand species so far.
Having a ball and learning all about plants.

The biggest flower on Earth is the corpse flower,
Only blooms now and then for barely an hour.
To get pollinating bugs to come in close,
It imitates dead flesh by smelling really gross!
[spoken] Just disgusting!

We're learning all about plants and how they grow,
All about plants, there's lots to know.
Having a ball and learning all about plants,
Learning all about plants.

WATER BEARS
by Andrea Gaudette

BARI: I'm a water bear, also known as a tardigrade,
And I'm the toughest known creature in the world.
ALTO: Any environment on earth, and even into outer space
ALL: Will prove that I can weather any storm.

I've got two eyes, a nose, and sharp little teeth,
A long body and scrunched up piggy face.
I have eight puffy legs with claws at the end,
And I can survive in the vacuum of space.

I'm a water bear, also known as a tardigrade,
And I'm the toughest known creature in the world.
Any environment on earth, and even into outer space
Will prove that I can weather any storm.

I curl up into a tiny ball called a tun
When the environment gets too severe.
I can go into a near-death, dehydrated state
Called cryptobiosis for at least thirty years.

I'm a water bear, and my habitats are everywhere,
'Cause I'm the toughest known creature in the world.
Any environment on earth, and even into outer space
Will prove that I can weather any storm.

You can freeze me up to negative two hundred Celsius;
I'll withstand one-fifty degrees above.
I'll survive six times the pressure of the ocean's most deep;
You can expose me to the radiation of the sun.

I'm a water bear, I'm about a millimeter long,
And I'm the toughest known creature in the world.
Any environment on earth, and even into outer space
Will prove that I can weather any storm,
Be it cold or be it warm. Yeah!

CAMBRIDGE PUBLIC SCHOOL MEDLEY
by Cambridge Public School Students, facilitated, tweaked, and arranged by David Haines

SONG 1: PERSNICKETY ZOO
I gave my giraffe a kangaroo to eat.
"NO!" he cried, "I don't eat meat!"
Tasmanian tiger said, "Yes, please!"
He munched the kangaroo, the giraffe crunched leaves.

I gave my giant panda fresh fish for her dinner.
"YUCK!" she shouted, "That dinner ain't a winner!
Give me a huge big bunch of bamboo!"
Polar bear said, "I'll eat that fish, thank you!"

I looked in the mirror and I said to me:
"Why don't you know how to feed your zoo?
Whenever you offer a fine delicacy,
They say, 'NO!' to you,
They say, 'NO!' to you."

I gave my zebra snails, but she looked amazed.
"STUPID!" she snapped, then the grass she grazed.
Twelve ducks waddled up, quacking, "We see lunch!"
They snatched those snails and voraciously munched.
[Quack! Quack!]

I looked in the mirror and I said to me:
"Why don't you know how to feed your zoo?
Whenever you offer a fine delicacy,
They say, 'NO!' to you, they do,
They say, 'NO!' to you."

SONG 2: DANDY'S SONG
I'm Dandy the Dandelion, started as a seed,
Floating up high, three hundred feet.
Landed on dirt made of pigeon poo,
Rooted, sprouted, 'n' there I grew.

I drank rain and ate rays from the sun.
Now I'm a happy, healthy dandelion.
Torch, crown, tablet, and Manhattan I see
From up here upon the Statue of Liberty.

SONG 3: GARDENER AND WORM
GARDENER (Sop, Alto):
Gard'ner and worm are chatting one day.
This is what those two friends say.
Gard'ner and worm are chatting one day.
This is what those two friends say.

How are you doing? What do you need?
Can you poop ev'ry day? On what do you feed?
...
Gard'ner and worm are chatting one day.
This is what those two friends say.

I've got some yummy veggie compost for you:
Tomatoes, lettuce, carrots. Will all that do?
...
Gard'ner and worm are chatting one day.
This is what those two friends, two friends say.
This is what those two friends, two friends say.

WORM (Tenor, Bass):
Gard'ner and worm, chatting one day.
Those two friends, this is what they say.
Worm, chatting one day.
Those two friends, this is what they say.
...
I'm happy in the soil, it's moist and dark.
I stretch and contract as I move through the park.

Gard'ner and worm, chatting one day.
Those two friends, this is what they say.
...
Yes, yes! And please sprinkle precious water on me,
But not too much, 'cause I need fresh air to breathe!

Gard'ner and worm, chatting one day.
This is what those, this is what those two friends say.
This is what those, this is what those two friends say.

SONG 4: AMAZON LAYERS:
SOP/ALTO: Ooo...
KIDS/BARITONE:
I'm a hungry jaguar, creeping through the forest,
Between buttress roots in the leafy dark,
Ignoring caiman, tapir, anteater, ants.
I climb a kapok tree, claws gripping its bark.

REFRAIN (ALL):
Rainforest in the Amazon basin,
From top to bottom, layers four:
Emergent, canopy, and understory,
And at the bottom lies the forest floor,
And at the bottom lies the forest floor, forest floor.

SOP/ALTO: Ooo...
KIDS/BARITONE:
In the understory, I avoid a boa,
Growl at a two-toed sloth snoozing in the tree.
Moist salamanders freeze, flimsy butterflies flutter by,
Capuchin monkeys screech as they flee from me.

Squawking squirrel monkeys, pois'nous frogs and toucans,
Ferns, orchids, mosses 'round me in the canopy.
Above me, in emergent layer, happy eagles fly,
Spider monkeys leaping from tree to tree.

REFRAIN (ALL):
Rainforest in the Amazon basin,
From top to bottom, layers four:
Emergent, canopy, and understory,
And at the bottom lies the forest floor,
And at the bottom lies the forest floor, forest floor.
Ooo...*Grrrr.... [low throaty growl]*

LUCA (Last Universal Common Ancestor)
by Bruce Lazarus

The Last Universal Common Ancestor -
Giving rise to life evermore.
From its humble beginnings on the walls of deep sea vents and red hot magma,

Its DNA evolved and became plant life and animals.

Three billion years of evolution, death and birth -
Giving rise to life on Earth.
All the life on our planet has a common ancestor.
LUCA is you and me!

Moons and other planets in our Solar System, in our galaxy,
Might have their own LUCA.
It's worth a look.
LUCA!

MUTATE!
by David Haines

CHORUS:
Won't you give a big hand for errors,
Applause for mistakes?
Without them we wouldn't be here.
Let's hear it for inexactitude,
For imprecision, bravo!
For fudging it, hip hip, three cheers.

SOP/ALTO: (TEN/BASS sing "Da da da...")
D N A, of twisted double helix fame,
Is an expert at that self-replication game,
But once in a million times it goes wrong,
And thanks to that we're singing this song...

REPEAT CHORUS

TEN/BASS: (SOP/ALTO sing "Da da da...")
If that new mutation hits an egg or seed
Which manage to combine together and then lead
To one new fungus, plant or beast,
That babe will be a little different at least.

ALL:
That mutation will probably reduce
Our new pal's ability to reproduce
But every now and then a mutation arrives
That gives you a better chance of making more lives.

REPEAT CHORUS

SOP/BASS: (ALTO/TEN sing "Da da da...")
When the kids inherit that mutated gene,
They're fitter than they otherwise might have been
To have more kids themselves and pass it on,
And so it spreads through the population.

SOP:	ALTO/TENOR/BASS:
Let's award the first prize for cock-ups,	Let's award the first prize, second prize,
The second for slips,	
Without them we're nothing but slimy algae.	Nothing but algae.
Put your hands together	Put your hands together
For things that go wrong,	
Take off your hats to serendipity.	For serendipity.

REPEAT CHORUS

For fudging it, hip hip, three cheers.
For fudging it, hip hip, three cheers!

LAKE
by David Haines

Dawn breaks on the great lake under African skies
Long, long ago, [[long,] long, long ago].
Fish swim in the great lake.
They are all of one kind, one single species.
Then a million years [pass by]
In a single blink of eternity's eye.

And the sun shines a little warmer for a hundred thousand years or two,
And the rains fail and under blue skies, the level of the lake gradually falls,
And the sun shines a little warmer for a hundred thousand years or two,
And the rains fail and under blue skies, the great lake becomes many separate pools.

Dawn breaks on those small lakes under African skies
Long, long ago, [[long,] long, long ago].
Fish swim in those small lakes.
They are all of one kind, one single species.
Then a million years [pass by]
In a single blink of eternity's eye.

Every small lake is its own world, some are shallow, some are deep and cool,
One is crystal, another cloudy, fishes survive within them all.
As the years pass, evolution changes fish to suit their world.
Over thousands of generations, they evolve and adapt to their particular pool.

Dawn breaks on those small lakes under African skies
Long, long ago, [[long,] long, long ago].
Fish swim in those small lakes.
They are of many kinds, all different species.
Then a million years [pass by]
In a single blink of eternity's eye.

And the sun shines a little cooler for a hundred thousand years or two,
And the rain falls and under gray skies, the level of the lakes will gradually rise,
And the sun shines a little cooler for a hundred thousand years or two,
And the rain falls and under gray skies, the great lake, reborn, in the dawning light lies.

Dawn breaks on the great lake under African skies
Long, long ago, [[long,] long, long ago].
Fish swim in the great lake.
They are of many kinds, all different species.
Then a million years [pass by] in a single blink of eternity's eye.
Then a million years [pass by] in a single blink of eternity's eye.
Then a million years [pass by] in a single blink of eternity's eye.
Dawn breaks on the great lake under African skies
Long, long ago, [[long,] long, long ago].

FLYING CREATURES
by David Haines

What's up there? What is that?
It's a furry big black fruit bat.
What's that gliding above the sea?
Fishes flying gracefully.

What's that speeding over there?
A lizard that's soaring through the air.
See that buzzard hovering high?
Mouse below is going to die.

CHORUS:
Mammals, birds, insects fly for miles.
Others can glide like fish and reptiles.
How I wish that I could fly,
But I can't.

REPEAT CHORUS

Hear that busy buzzing bee
Collecting nectar busily.
See that froggie green and cute.
Uses feet as a parachute.

Did I dream or did I see
A lemur swoop from tree to tree?
Am I mad, brain going soft?
Did I see a snake aloft?

CHORUS:
Mammals, birds, insects fly for miles.
Others can glide like fish and reptiles.
How I wish that I could fly,
But I can't.

Mammals, birds, insects fly for miles.
Others can glide like fish and reptiles.
How I wish that I could fly,
And now I've bought my jet pack,
I can fly high in the sky,
I can fly, fly, fly, fly, fly, fly, fly, fly.

THE UNDERWATER SONG (SONG OF THE OCTOPUS)
by Graham Treacher

Verse: Deep down below, deep down below
There's something strange, there's something eerie, eerie.
The ceph'lopods, the squid and octopus,
Just like we humans blink, blink, blink, blink, blink.
We both can blink and glint and dart,
Those same old eyes, the squid and me.

Chorus: It just had to be, just had to be, to be, to be.

Verse: The octopus is not a human,
Yet its eye looks just like

High: mine, looks just like yours, the squid and me.
Low: retina and cornea and iris, lens and fluid-filled.

Chorus: Convergent evolution made our eyes appear the same.

Verse: The octopus cannot see color
But it can detect polarity of light,

High: Polarity of light.
Low: It has no blind spot in its eye because

Chorus: Its eyes grow from its skin, and our eyes grow from our brains.

Verse: Our retina, it faces backward,
In the squid it faces forward. It evolved

High: from different cells.
Low: from dermal tissue, ours evolved from nervous cells.

Chorus:
High: Convergent evolution had to be, to be, to be.
Low: Evolution had to be, to be, just had to be, just had to be, to be.

A RAINFOREST OPERA
by Andrea Gaudette and her students

Reporter: *Breaking news! The only wood left on Earth just been found in the Amazon Rain forest, and it's worth billions of dollars. That's all for today everyone. Now back to the boring news.*

Lumberjacks: *Trees! Trees!*

Trees: What are you doing?

Lumberjacks: Chopping down the East Side!

Trees: NO!!!

Lumberjacks: Wood is worth billions!

Trees: Oh, no! That's our habitat!

Lumberjacks: Choppity chop chop, choppity chop.

Bob (Lumberjack):
Goodbye trees, let's make a motel here.

Fred (Lumberjack):
What will we do with these trees?

Bob: We will throw them into the river.

Fred: Good Idea!

Reporter: *This just in: The biodiversity of the Amazon Rainforest is at risk! Who will stop this madness?*

Lumberjacks: Chopping, chopping through the trees. No more animals, no more bees!
We will get you, yes we will!

Frog: *Run! Run! Run! The trees are falling!*

Jaguar: *Save your species! Flora! Fauna! Flee!*

Tree: I'm falling down, I'm feeling scared.
No! No!
I don't wanna die. Don't wanna be cut down.
No! No!
Watch out! I'm falling!

Jaguar: Falling forest, aching paws,
Running from side to side.

Jaguar: Dodging trees, falling down,
West Side is safe and sound.
Deforested from home to home.
Gotta think, gotta go.
West Side, West Side, West Side.

I am alone. Endangered. No home.
Deforested from home to home.
Gotta think. Gotta go.

East Siders: *West Side is safe and sound.*
Deforested from home to home.
Gotta think, gotta go.
West Side, West Side, West Side!
This is our home.

Sloth & Tree & Orchid: Morning!

Anaconda & Panther: Morning!

Sloth & Tree & Orchid: Morning!

Anaconda & Panther: Morning!

West Siders: Good day!
Such a lovely day on the West Side, so bright!

Anaconda: Fruits and nuts are here where we need them!

Sloth: Though some of us prefer leaves.

West Siders: What's on the East Side?

Panther: Better not know that!

West Siders and Panther: Let's eat!

Orchid: We need to leave but I'm stuck in the ground.

Jaguar: I'll pick you up, and plant you on the West Side.

Orchid: OK

Jaguar: *Let's do this!*

Frog: *How?*

Jaguar: I don't know, we'll figure it out!

Orchid: We're gonna do this!

Jaguar: *Are we?*

Orchid: *What?!* I thought you were in charge of this!

Frog: *We're gonna die!*

Chorus: Splish splash splish splash
Splish splash splish

Dolphin: What advice would you wish from the wise pink dolphin? The trees are falling, falling. I need to find some new land quickly!

Jaguar & Frog & Orchid:
We need to get to the West Side!

Dolphin: Hop on my back! Splish! Splash! Splash!

Jaguar & Frog & Orchid: *Thank you!*

Panther & Anaconda: Oh no! We need to warn the others! The East Siders are coming!
Hello! Can anyone hear us?

Dolphin: We need a plan to keep our land.

Everyone: Stop fighting, come together
On a canoe crossing the river. Our terror awaits.

Dolphin: I'll take the river.

Jaguar: I'll take a boat.

Orchid: We'll take a lookout.

Sloth: I'll use my claws.

Frog: I will help her.

Panther: I'll claw at them and jump.

Everyone: It all comes to the kapok tree.
We need the kapok tree because it gives all the nutrients to all the plants and animals.

Anaconda: From the forest floor and the understory and the canopy.

Jaguar: Don't forget the emergent layer!

Reporter: *Breaking News Update from our Sky Cam reporter: A group of plants and animals have been spotted travelling down the Amazon River towards what looks like the last standing kapok tree!*

Dolphin: *Stop!*

Everyone else: *Stop?*

Dolphin: Everyone stop!
We need to work together to save the kapok tree. We need to work together, together.

Everyone else: We need to work together?

Dolphin: We need to work together. Everyone help me to save the kapok tree. Help me!

Everyone else: Help you?

Dolphin: Please, please, please.

Everyone: Help me, help me to save the kapok tree.

Orchid: *What if we all go together to scare away the lumberjacks?*

Panther: *Yeah, we can all make our own sounds to scare them away!*

Jaguar: *OK, everyone make your sound at the same time!*

Everyone: Victory! Victory!
We are happy because we have biodiversity.
We need the kapok tree because it gives us all the nutrients to all the plants and animals from the forest floor and the understory and the cloud forest. Don't forget the emergent layer!
Victory!! Victory!!
We are happy because we have biodiversity!
We can live in harmony!

CORAL CHORALE
by Jill Pelavin

Reefs are a beautiful mystery,
A bustling city amidst a desolate sea.
Beyond its boundaries lie nothing but debris,
So how does this ecosystem happen to be?

Algae photosynthesize glucose from light
To give the coral most of its appetite.
Coral gives shelter and carbon dioxide.
It's the basis for a city that's oh so bright.

Twenty-five hundred types of coral in the sea,
All colored brightly by their zooxanthellae.
Seven thousand fish species call the reefs their home.
It would take hours just to say their names alone!

But here's a few:
Bluehead wrasse with their blue-green stripes,
Lionfish with their orange bony spikes,
Tangs with their scalpels by their tails,
And delicate orange, brown, and white cone snails.

There's jellyfish, dolphins, and seahorses, too,
Clams, oysters, nudibranchs colored brightly blue,
Butterfly fish and synchiropus splendidus,
Orange trigger fish, and many types of octopus.

From Saint John to Fiji,
Fish thrive powered by algae,
Such as giant groupers and the pygmy goby.
Reefs have the seas' most biodiversity.

Reefs only cover point one percent,
About equal to half the size of France.
Reefs only cover point one percent
Of the Earth's big blue seas.

But that itty bitty teeny pile of submerged rocks
Contains a quarter, contains a quarter of all marine species.

POND SONG
by Andrea Gaudette

I love to hike to my favorite pond,
Way over yonder on the mountain top.
I went one day but the otters were gone,
Way over yonder on the mountain.

Where are the otters that splash and play?
Their habitat changed so the otters went away.
There's an imbalance in the ecosystem
Way over yonder on the mountain.

An alien species, an invasive plant,
Has choked the water lilies so they can't take root.
Oh, where are the lilies that smell so sweet?
The pond is losing biodiversity.

The coverage water lilies provide
Protects bugs from predators so they can hide.
Oh, where are the bugs that buzz in the sun?
Bugs can't hide so the bugs won't come.
Lilies won't grow, bugs can't hide,
Way over yonder on the mountain.

Now, insects make a tasty prey
For the frogs that leap in the pond all day,
But frogs need energy to lay their eggs.
Frogs can't eat so the frogs don't lay.

Loons eat frogs, a lovely protein snack.
Loons lost their food so they won't come back.
Oh, where are the loons that laugh their song?
Loons won't sing 'cause the frogs are gone.
Lilies won't grow, bugs can't hide,
Frogs don't lay, loons won't sing
Way over yonder on the mountain.

A moose came by to take a drink,
But decomposing matter made a nasty stink.
The oxygen levels in the water declined.
Now there's too much carbon dioxide.

pH in the water also declined.
Now it's more acidic than alkaline,
And carbonic acid in the pond increased.
Now the fish are all deceased.
Lilies won't grow, bugs can't hide,
Frogs don't lay, loons won't sing,
Moose won't drink, fish can't breathe,
Way over yonder on the mountain.

Otters prey on the fish in the pond
Way over yonder on the mountain top,
But otters can't fish 'cause the fish are gone
Way over yonder on the mountain.
Where are the otters that splash and play?
Otters can't fish so the otters went away.
There's an imbalance in the ecosystem.
Lilies won't grow, bugs can't hide,
Frogs don't lay, loons won't sing,
Moose won't drink, fish can't breathe,
Otters don't play,
Way over yonder on the mountain.

FOUR BILLION YEARS
by David Haines

SOLO
Four billion years,
Four thousand million years.
Birth pangs of life on earth began
Four billion years ago.

Four billion years,
Four thousand million years.
We could be last in a line
Four billion years old.

How sad it would be
If we carelessly
Allowed life to disappear
From every land, from every sea.

Now I'm so afraid
That the progress life has made
Could be thrown away from sheer neglect,
From human apathy.

SOPRANO/ALTO CHORUS

Four billion years,
Four thousand million years.
[Birth pangs of] Life on earth began
Four billion years ago.

Four billion years,
Four thousand million years
[We] May be last in a line
Four billion years old.

How sad it would be
If we carelessly
Allowed life to disappear
From every land, from every sea.

How sad it would be
If life's melody
Was cut short, never to sound again
In future history.

TENOR/BASS CHORUS

Four billion years,
Four thousand million years.
Four billion years ago.

Four billion years
Four thousand million years
Four billion years old.

How sad if life,
Life disappeared
From land, every sea.

How sad if life's melody
Was cut short, never to sound again
In future history.