

THE DIVERSITY OF ANIMAL SOUNDS

INCLUDES THE FASCINATING SOUNDS OF ALLIGATOR,
BATS, BIRDS, CHIMPANZEE, ELEPHANT, ELK, FROGS,
LION, MONKEYS, RATTLESNAKE, WHALES, WOLF, AND MORE.



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THE DIVERSITY OF ANIMAL SOUNDS

Introduction

From the roar of a Red Howler Monkey to the complex mimicry of a Superb Lyrebird, animal sounds are remarkably diverse. And because animal sounds are so varied, the potential for hearing new and wonderful sounds is inexhaustible. This CD celebrates the diversity of animal sound. The accompanying pamphlet provides some general explanations for the underlying reasons for animal sound diversity.

Animals use sounds to maintain the social fabric of their lives. They use sound to attract and court mates, determine which nestling gets the worm, repel rivals, defend territories, coordinate group activities, announce food finds, warn others of predators, and tell predators that they have been detected. Each social function requires the exchange of different kinds of information, producing a multitude of sounds with diverse physical properties.

An animal's anatomy affects the kinds of sounds produced. Terrestrial vertebrates such as frogs, birds, and mammals use their respiratory system to create sounds. Terrestrial arthropods including insects do not pump sufficient volumes of air into and out of their bodies to vocalize, but instead rub parts of their hard exoskeletons together to generate rasps, buzzes, and clicks. Body size plays a role here as well. For example, only large animals can generate low frequencies. Thus sounds used for the same social function will likely differ among large and small species.

Habitat plays an important role in shaping sound diversity. Sounds may become distorted as they travel through the habitat. Animals minimize this distortion by producing sounds that are least affected by their habitat. For example, forest trees generate echoes that will disrupt the temporal patterning in a sound. Open country habitats produce few echoes. As a result, forest birds generally use songs with long, pure tones, while most prairie birds produce rapid songs with many short notes.

The distance from one animal to another also influences its use of sound. Group-living animals need a larger diversity of sounds than do solitary animals. The habitat may impose greater constraints on sound production when animals live far apart, since they must choose sounds that travel well over long distances. In contrast, sound distortion is rarely a problem for highly social animals that communicate at short range.

Finally, sounds are shaped by listeners. Animals, like humans, can lie, but they gain little if listeners selectively respond to signals that can only convey honest information. For example, females often prefer larger or older mates. Female frogs select males with lower-pitched calls because only larger frogs can produce calls with a low pitch. Female birds may favor males with larger song repertoires because only older males will have had the time to master large numbers of songs. In both cases, the female's reference for a particular type of signal keeps males honest.

The sheer diversity of animal sounds is impressive in its own right, but for many of us, understanding the underlying reasons for this variation gives us an even deeper appreciation. As you listen to this CD, consider how social function, anatomy, habitat, dispersion, and the need for honesty may have influenced the sounds you hear. To help you navigate, we have grouped the sounds according to their social function.

First we highlight sounds used in courtship and mating. These sounds are likely to differ depending upon whether a) males mate with many females but do not reside with them or provide paternal care (promiscuous species, tracks 1-20), b) males mate with more than one female and live with them in the same group or colony (polygynous species, tracks 21-27), or c) each male mates with a single female and remains with her at least through a breeding season (monogamous species, tracks 28-47).

Next we present sounds used for the coordination of nonsexual activities (tracks 48-57). This category includes group territorial calls, calls that synchronize group movements, and food and predator announcements. Some animals direct sounds at other species. Usually, this involves an animal communicating with one of its predators (tracks 58-60).

We conclude with sounds from two recently extinct species whose sound communication systems were seriously undermined as their habitats were altered and their densities plummeted (tracks 61-62). This again points up the critical role that sound can play in animals' lives.

Using this compact disc

Each species presented on this compact disc is individually tracked to permit rapid access. The track number appears to the left of each common name. In cases where a recording was slowed down or sped up (to make it easier for a human to hear), the sound is presented at normal speed, with speed adjustments in successive tracks.

SPECIES PLAYLIST

Display signals of promiscuous males

Males of promiscuous species mate with many different females but do not live with them. Their sole contribution to the reproductive process is the provision of sperm. This creates intense competition, and promiscuous species often produce the most striking male courtship sounds.

Courtship sounds of promiscuous males vary depending upon how the males are distributed in their habitat. Males that display solitarily or in a dispersed fashion tend to use more complex and variable vocalizations. Their challenge is to entice an interested female to remain long enough to approach and mate. One effective strategy is to advertise their age or experience by using long and complex vocalizations. In contrast, males that display in groups, called “choruses” for frogs and “leks” for most other animals, are more easily compared by visiting females. Females thus favor simple but challenging sounds that are repeated rapidly to reveal differences in male vigor, health, or experience.

Anatomy and habitat often combine to create diversity in sounds of promiscuous animals. Insects such as treehoppers cannot produce vocal signals by breathing, but instead make tonal sounds by vibrating their abdomens rapidly. These sounds are then transmitted through the vegetation on which the treehopper sits. Where females favor larger mates, males tend to produce sounds with as low a frequency as possible to advertise their size (e.g., frogs and alligators). Low frequencies also transmit better than higher frequencies when close to the ground. As a result, large birds with terrestrial leks, such as Greater Sage Grouse, include low frequencies in their displays.

The following tracks present sounds made by promiscuous males starting with those that display solitarily, followed by those displaying on dispersed leks (where a female can compare several but not all males from a given location), and ending with highly aggregated lek species (where females can easily compare all males in the lek).

Track Number/Common Name/ Scientific Name

1. Satin Bowerbird

Ptilonorhynchus violaceus
Males are solitary or highly dispersed
Displaying male at bower
Australia, New South Wales,
Washpool National Park
Mary Katz
LNS 46836

2. American Alligator

Alligator mississippiensis
Males are solitary
Courtship vocalization from male
(stereo recording)
United States, Georgia, Okefenokee
Swamp, Suwannee Canal Run
Thomas Wiewandt

3. Jaguar

Panthera onca
Males are solitary
Male producing loud “sawing” call
Germany, Cologne, Cologne Zoo
Gustav Peters

4. Superb Lyrebird

Menura novaehollandiae
Males are solitary
Song with mimicry
Australia
F. N. Robinson
LNS 8004

5. Three-humped Treehopper

Heteronotus trinodosus
Solitary displaying males of this
insect species move about and
may interact with other males
Plant-borne sounds (vibrations)
from two nearby males
Panama, Rio Guanche
Rex Cocroft

6. Yellow Buffalo Treehopper

Strictocephala lutea
Solitary displaying males move
about and may interact with
other males
Plant-borne sounds (vibrations)
from nearby males
United States, New York,
Tompkins Co., Freeville
Rex Cocroft

7. Capercaillie

Tetrao urogallus

Males of this large grouse species display solitarily or on dispersed leks (within hearing range of each other)

Single male displaying (stereo recording)

Scotland, Inverness

Gregory F. Budney

8. Franquet's Epauletted Bat

Epomops franqueti

Males on dispersed leks

Individual male advertisement calls
Gabon, Makokou, south bank
of Ivindo River

Jack W. Bradbury

9. Bowhead Whale

Balaena mysticetus

Males on dispersed leks or solitary
Song given on northward migration
to feeding grounds

United States, Alaska, North Slope
coast near Barrow

Christopher W. Clark

10. Humpback Whale

Megaptera novaeangliae

Males on dispersed leks

Breeding season song
Hawaiian Islands, Hawaii,
south Kohala coast

Adam Frankel

11. Knudsen's Frog

Leptodactylus knudseni

Male chorus

Male call

Peru, Madre de Dios,

Tambopata Reserve

Rex Cocroft

12. Tungara Frog

Physalaemus pustulosus

Male chorus

Calls (stereo recording)

Panama, Gamboa

Rex Cocroft and Stanley Rand

13. Smoky Jungle Frog

Leptodactylus pentadactylus

Male choruses

Chorus with Tungara Frog and
Panamanian Narrow-mouth
Frog (high trill) in background
(stereo recording)

Panama, Gamboa, Kent's Marsh

Rex Cocroft

14. Club-winged Manakin

Machaeropterus deliciosus

Dispersed or small lek

Vocal and mechanical sounds at lek

Ecuador, Pinchincha, Reserva

Maquipucuna

Kim Bostwick

15. Black-and-gold Cotinga

Tijuca atra

Dispersed or small lek

Song delivered by several
individuals at lek

Brazil, Rio de Janeiro, Itatiaia

National Park

Theodore A. Parker, III

LNS 23778

16. Red-ruffed Fruitcrow

Pyroderus scutatus

Dispersed or small lek

Display by four to six birds

Venezuela, Bolivar, Santa Maria

Paul A. Schwartz

LNS 62813

17. Capuchinbird

Perissocephalus tricolor

Dispersed or small lek

Lek with five to ten calling males
(stereo recording)

Guyana, Potaro-Suparuni, Surama

Bret M. Whitney

LNS 96600

18. Screaming Piha

Lipaugus vociferans

Small lek

Five to six birds displaying at lek
(stereo recording)

Guyana, Region 9-North

Rupununi, Iwokrama

Gregory F. Budney

19. Bearded Manakin

Manacus manacus

Large lek

Mechanical sounds at hybrid zone

lek where both *M. manacus* and

M. aurantiacus occur

Colombia, Cauca, Guapi

Mark B. Robbins

LNS 37383

20. Greater Sage Grouse

Centrocercus urophasianus

Large lek

Calls and mechanical sounds at

active lek (stereo recording)

Oregon, Harney Co., near Malheur

National Wildlife Refuge

David S. Herr

Territorial and courtship signals in polygynous species

Polygynous males mate with multiple females but, unlike promiscuous species, live in social groups with those females or at least with the young. Males can use three strategies to acquire mates. The first is to offer paternal care to multiple females in exchange for matings. This

is the approach of some species of fish in which males provide all of the parental care. A second strategy is to exclude rival males from an existing herd or troop of females. This creates the “harems” seen in many mammals. A third strategy is to defend a resource required by females such as a nesting site, food patch, or refuge. The male allows only females to have access to the resource and thus obtains any matings when those females are receptive.

The advertisement calls of polygynous males differ depending on which method they use to attract and retain females. Female fish that choose their mates may favor male signals that honestly reflect health and vigor. These are likely to be simple sounds that males must repeat at a high rate for long periods (midshipman fish, for example). When males win mates by defending a group of females or their resources, one might expect males to direct their calls more at rival males than at reluctant females. This is often the case. Recent research, however, shows that polygynous males will direct sounds at both sexes when it is likely

that females will sneak out of their usual group to mate with a particularly attractive male in another group. Where the composition of female groups is unstable (e.g., Greater Sac-winged Bats), male sounds may play an even larger role in female attraction than in rival male repulsion. Advertisement calls are then more like those of solitary promiscuous species in having long and complex motifs.

In mammals, larger males often win contests over female groups or resources. It thus makes sense for larger males to defend females by emitting low frequency calls that cannot be faked by smaller males (as in elk). Males that have to defend large territories to enclose female groups or defend resources also require loud and low frequency signals that can travel long distances (howler monkeys). Territorial control in birds is more often based on age and experience, and the requisite male calls tend to be difficult to perform without extensive practice (as in oropendolas).

21. Plainfin Midshipman

Porichthys notatus

The male of this fish species offers paternal care in exchange for matings

Grunt calls and hum from chorusing males

(stereo recording)

United States, California,

Tomales Bay

Andrew H. Bass

22. Elk (Wapiti)

Cervus elaphus canadensis

Male defense of female herd

Bugling from male elk

(stereo recording)

Note low frequency notes on end of each bugle

United States, Wyoming,

Yellowstone National Park

David S. Herr

23. Russet-backed Oropendola

Psarocolius angustifrons

A male bird's defense of nesting tree

Song

Bolivia, La Paz, Pahuil

Theodore A. Parker, III

LNS 44426

24. Olive Oropendola
Psarocolius bifasciatus
A male bird's defense of
nesting tree
Song
Peru, Madre de Dios,
Tambopata Reserve
Theodore A. Parker, III
LNS 31985

25. Greater Sac-winged Bat
Saccopteryx bilineata
Harem male defense of females and
roosting site
Song and hover display to females
(normal speed)
Trinidad, Nariva Swamp,
Bush Bush
Jack W. Bradbury

26. Greater Sac-winged Bat
Saccopteryx bilineata
Harem male defense of females and
roosting site
Song and hover display to females
(same as track 25 at
one-quarter speed)
Trinidad, Nariva Swamp,
Bush Bush
Jack W. Bradbury

27. Red Howler Monkey
Alouatta seniculus
Male defends female group
and territory
Calls from male
Peru, Madre de Dios, Manu
National Park, Cocha Cashu
Theodore A. Parker, III
LNS 34440

***Territorial and courtship displays
of monogamous pairs***

The majority of birds and a minority
of mammals live in monogamous pairs.
Males use songs to attract a female and
establish a territory. After pairing, these
animals may use fewer or different
vocal signals to guard their mate,
defend the pair's territory, or coordinate
breeding synchrony. However, the fact
that some monogamous male birds
continue elaborate singing long after
pairing appears to be due in part to
the possibility of obtaining clandestine
matings with neighboring females.

Monogamous species differ
markedly in their division of labor.

The appropriate division for any species
depends on the habitat in which the
animals live, their diet, their nesting
site, and their expected longevity. Once
defined, the division of labor is then
reflected by the degree to which the
male or both members undertake vocal
defense tasks. Our series of sounds
from monogamous pairs begins at one
extreme, in which males perform all
of the vocal advertising, and moves to
steadily increasing contributions by
females. The final species all use highly
coordinated pair duets for territorial and
mate defense.

28. Great Potoo
Nyctibius grandis
Male does territorial defense
Call
Peru, Loreto, north bank of the
Rio Napo, Quebrada Sucusari
Sucusari Camp
Theodore A. Parker, III
LNS 31736

29. Common Potoo
Nyctibius griseus
Male does territorial defense
Call
Venezuela, Guárico, Guaitoco
Paul A. Schwartz
LNS 59964

30. Common Nighthawk
Chordeiles minor
Male does territorial defense
"Peent" vocalization and
"booming" (created by air
rushing through primary flight
feathers during flight display
dive) (stereo recording)
United States, Oregon, Harney
Co., 1.5 km S of Frenchglen
David S. Herr

31. American Bittern
Botaurus lentiginosus
Male does territorial defense
Call
United States, New York,
Franklin Co., Bay Pond Park
Steven R. Pantle and
Gregory F. Budney
LNS 53166

32. Common Nightingale
Luscinia megarhynchos
Male does territorial defense
Song delivered at 2:15 A.M.
Netherlands, Noord-Holland,
Bloemendaal, National Park
Kennemerduinen
Arnoud B. van den Berg
LNS 71610

33. Brown-backed Solitaire
Myadestes occidentalis
Male does territorial defense
Song
El Salvador, Santa Ana,
Cerro Verde
Walter A. Thurber
LNS 11362

34. Winter Wren
Troglodytes troglodytes
Male does territorial defense
Song (normal speed)
(stereo recording)
United States, New York,
Franklin Co., Bay Pond Park
Gregory F. Budney

35. Winter Wren
Troglodytes troglodytes
Male does territorial defense
Song (same as track 34 at
one-half speed), (stereo recording)
United States, New York,
Franklin Co., Bay Pond Park
Gregory F. Budney

36. Canyon Wren
Catherpes mexicanus
Male does territorial defense
Song
United States, Arizona, Pima Co.,
28 km NW of Nogales
Geoffrey A. Keller
LNS 40607

37. Musician Wren
Cyphorhinus arada
Both members of pair sing
Song from a single individual
Peru, Madre de Dios, Manu
National Park, Cocha Cashu
Theodore A. Parker, III
LNS 29734

38. Tui
Prosthemadera novaeseelandiae
Both members of pair sing
Song (normal speed)
New Zealand, Kapiti Island
Leslie B. McPherson

39. Tui
Prosthemadera novaeseelandiae
Both members of pair sing
Song (same as track 38 at
one-half speed)
New Zealand, Kapiti Island
Leslie B. McPherson

40. Galapagos Petrel
Pterodroma phaeopygia
Both sexes call during pair
formation
Calls at night from several birds
in flight over nest burrows
(stereo recording)
Galapagos Islands, Isla Santiago
Gregory F. Budney and
James L. Gullledge

41. Common Loon
Gavia immer
Pairs duet to defend territory
Wail call by two individuals
(stereo recording)
United States, New York,
Hamilton Co., Mason Lake
Steven R. Pantle and
Kimberly C. Pantle

42. Yellow-naped Amazon
Amazona auropalliata
Pairs of this parrot species duet to
defend nests
Pair duet
Costa Rica, Guanacaste,
Santa Rosa National Park
Jack W. Bradbury and Jennifer Webb

43. Australian Magpie
Gymnorhina tibicen
Pairs and young chorus to
defend territories
Pair duet
Australia, Victoria, near Carlsbrook
Margaret J. Widdowson

44. White-handed Gibbon
Hylobates lar
Pairs and young duet to defend territory
Family Chorus
Thailand, Northeast, Khao Yai National Park
Arnoud B. van den Berg and Cecilia A.W. Bosman
LNS 33438

45. Horned Screamer
Anhima cornuta
Pairs duet to defend nests and each other
Pair duet
Peru, Madre de Dios, Tambopata Reserve
Theodore A. Parker, III
LNS 24131

46. Gray-necked Wood-Rail
Aramides cajanea
Pairs duet to defend territories
Pair duet
Costa Rica, Puntarenas, Corcovado National Park
Steven R. Pantle

47. Marbled Wood-Quail
Odontophorus gujanensis
Pairs duet to defend family group and nest
Pair duet (note that synchrony breaks down as birds move out of visual contact) (stereo recording)
Ecuador, Napo, south bank of the Rio Aguatico, Zancudo Cocha
Gregory F. Budney and David L. Ross, Jr.

Group defense and coordination signals

Animals that live in stable groups usually use different sounds to convene dispersed members, defend a group territory, ensure avoidance of competing groups, and coordinate group movements. Because the distances between different groups can be large, inter-group signals are often loud and designed to travel effectively within the species' typical habitat. They are also complex enough to provide information about the species, group, and individual identities of

the callers. Lions and wolves often give their group calls at night when atmospheric conditions for sound propagation are optimal. Elephants are capable of making exceedingly low frequency sounds that travel close to the ground over enormous distances. This enables distant members of the group to coordinate their movements so as to meet at convenient locations. The critical factors creating diversity in group calls include the distance over which the signals must travel, the species' typical habitat, the need for individual or group identification, and the degree to which participants seek to coordinate their movements.

48. Indri
Indri indri
Territorial defense with group calls
Typically three to five individuals consisting of an adult pair and their offspring (stereo recording)
Madagascar, Périenet
Mark Barsamian and Amy Dunham
LNS 97903

49. Gray Wolf
Canis lupus
Territorial defense with group calls
Group howls by pack
Canada, Ontario, Algonquin Provincial Park
William W. H. Gunn
LNS 56760

50. Great Blue Turaco
Corythaeola cristata
Territorial defense with group calls
Flock calls
Kenya, Nyanza, Kakamega Forest
Dale A. Zimmerman
LNS 20462

51. Lion
Panthera leo
Territorial defense with group calls
Group roaring
Namibia, Etosha National Park
Holly Payne and Flip Stander
LNS 53438

52. Dusky Titi Monkey
Callicebus moloch
Territorial defense with group calls
Calls by family troop
Peru, Madre de Dios, Manu
National Park, Cocha Cashu
Theodore A. Parker, III
LNS 30000

53. Laughing Kookaburra
Dacelo novaeguineae
Territorial defense with group calls
Group chorus (stereo recording)
Australia, Queensland
Ellie Brown

54. African Elephant
Loxodonta africana
Low frequency calls to coordinate
intergroup movements
Greeting rumbles as two
individuals meet
Central African Republic, Dzanga
Katharine Payne

55. Common Raven
Corvus corax
Movement coordination signal
“Gronk” call, “ooooo” call,
popping
United States, Oregon, Wasco Co.,
Mt. Hood National Forest
Geoffery A. Keller
LNS 50329

56. Common Loon
Gavia immer
Alarm calls
Tremolo call (stereo recording)
United States, New York,
Hamilton Co., Mason Lake
Steven R. Pantle and
Kimberly C. Pantle

57. Chimpanzee
Pan troglodytes
Advertisement of food finds to
group members
Pant-hoots
Tanzania, Mahale National Park
John Mitani
LNS 54077

Interspecific signals

Some animals use sounds to communicate with their predators. Many predators, such as large cats, must approach their prey by stealth to get close enough for an attack. Prey such as deer, antelope, and beavers use special sounds to notify predators that they have been spotted at a distance. Other animals are toxic or otherwise dangerous and use bright colors or sounds to warn potential predators of the danger in attacking them (aposematic signals). The startling sound of a rattlesnake is a classic example.

58. Mule Deer
Odocoileus hemionus
Predator notification signals
Snorts, stomping, and “stotting”
(stiff-legged bounding on all
four hooves) (stereo recording)
United States, California, Sierra
Co., Butterfly Valley
Gregory F. Budney

59. American Beaver
Castor canadensis
Predator notification signal
Tail slap on water
(stereo recording)
United States, New York,
Schuyler Co., Cayuta
Gregory F. Budney

**60. Western Diamondback
Rattlesnake**
Crotalus atrox
Aposematic (warning) signal
Rattle
United States, New York,
Tompkins Co., Ithaca (captive)
Harry W. Greene and
Steven R. Pantle

Extinct species

As humans alter natural habitats, the sounds evolved by animals for communication may no longer be effective in these new contexts. Birds such as woodpeckers require access to properly aged trees of the right species to create the loud drumming used to keep other pairs from infringing on their territory. Without suitable nesting trees and drumming posts, territorial behavior breaks down and breeding success plummets. This was surely the experience of the Ivory-billed Woodpecker which is now either extinct or remnant only as a few isolated individuals. Even if habitats remain intact, introduced predators and diseases often reduce native animal densities to the point where their natural signals can no longer bridge the distances between them. There is nothing more heart-breaking than to hear a lone bird such as one of the last Kauai Oo, included on this CD, plaintively advertising itself but receiving no answer. Without the frequent interactions that sounds provide, the social fabric of a species breaks down and the necessary functions

of reproduction and cooperative survival fail. Our last two cuts remind the listener of how important it is to preserve the sound world of our native animals and how easily they and that world can be lost, leaving us with only silence.

61. Ivory-billed Woodpecker

Campephilus principalis

Tapping and calls from a pair in 1935

United States, Louisiana, Madison

Parish, Singer Tract

Arthur A. Allen and

Peter Paul Kellogg

LNS 6784

62. Kauai Oo

Mobo braccatus

Song from one of the few

remaining individuals in 1976

Hawaiian Islands, Kauai,

Alakai Swamp

Thane K. Pratt

LNS 56465

ALPHABETIZED LIST OF SPECIES NAMES

<i>Common name</i>	<i>Track number</i>		
		Frog, Smoky Jungle	13
		Frog, Tungara	12
		Fruitcrow, Red-ruffed	16
		Gibbon, White-handed	44
		Grouse, Greater Sage	20
		Indri	48
		Jaguar	3
		Kookaburra, Laughing	53
		Lion	51
		Loon, Common (tremolo)	56
		Loon, Common (wail)	41
		Lyrebird, Superb	4
		Magpie, Australian	43
		Manakin, Bearded	19
		Manakin, Club-winged	14
		Midshipman, Plainfin	21
		Monkey, Dusky Titi	52
		Monkey, Red Howler	27
		Nighthawk, Common	30
		Nightingale, Common	32
		Oo, Kauai	62
Alligator, American	2		
Amazon, Yellow-naped	42		
Bat, Franquet's Epauletted	8		
Bat, Greater Sac-winged			
(normal speed)	25		
Bat, Greater Sac-winged			
(quarter speed)	26		
Beaver, American	59		
Bittern, American	31		
Bowerbird, Satin	1		
Capercaillie	7		
Capuchinbird	17		
Chimpanzee	57		
Cotinga, Black-and-gold	15		
Deer, Mule	58		
Elephant, African	54		
Elk (Wapiti)	22		
Frog, Knudsen's	11		

Oropendola, Olive	24	Wood-Quail, Marbled	47
Oropendola, Russet-backed	23	Wood-Rail, Gray-necked	46
Petrel, Dark-rumped	40	Wren, Canyon	36
Piha, Screaming	18	Wren, Musician	37
Potoo, Common	29	Wren, Winter (normal speed)	34
Potoo, Great	28	Wren, Winter (half speed)	35
Quail, Marbled Wood-	47		
Rail, Gray-necked Wood-	46		
Rattlesnake, Western Diamondback	60		
Raven, Common	55		
Screamer, Horned	45		
Solitaire, Brown-backed	33		
Treehopper, Three-humped	5		
Treehopper, Yellow Buffalo	6		
Tui (normal speed)	38		
Tui (half speed)	39		
Turaco, Great Blue	50		
Wapiti (Elk)	22		
Whale, Bowhead	9		
Whale, Humpback	10		
Wolf, Gray	49		
Woodpecker, Ivory-billed	61		

Credits

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