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MOLECULAR PHYLOGENY REVEALS HIDDEN DIVERSITY AMONG CUBAN  
BLINDSNAKES

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## ABSTRACT

Blindsnakes of the genus *Typhlops* display exceptional diversity. Recent studies revealed numerous cryptic species in Australia and the Caribbean and have inspired further investigation of the worm-like family of snakes (Typhlopidae). However, their conservative body plan has severely limited morphological analyses, and as a result, phylogenetic studies have turned to molecular methods. The purpose of this thesis was to investigate the diversity of species of *Typhlops* in Cuba, and to better understand the phylogeny and biogeography of the blindsnake family through DNA sequence analyses.

Four mitochondrial genes (12S rRNA, 16S rRNA, CytB, and ND2) were sequenced for 82 specimens of *T. lumbricalis* and five outgroup species to generate phylogenetic trees. Based on these studies, at least fifteen new Cuban blindsnake species were identified, and *T. lumbricalis* was restricted to the Bahamas. Separate morphological analyses support the molecular findings and will be published in a following paper.

To further resolve blindsnake molecular phylogeny, future research should focus on sequencing additional nuclear genes and calculating molecular divergence times. In addition, to broaden understanding of phylogeny and biogeography of the snake family, samples from the entire West Indian blindsnake fauna should be studied to gain a broader perspective on the evolution of the group in the Caribbean region.

## TABLE OF CONTENTS

ABSTRACT.....	i
INTRODUCTION.....	1
Scolecophidians.....	1
Typhlopidae.....	2
West Indian Snakes of the Genus <i>Typhlops</i> .....	2
<i>Typhlops lumbricalis</i> .....	3
Early Morphological Studies on <i>T. lumbricalis</i> .....	3
Molecular Evolutionary Genetic Studies.....	4
Ongoing Morphological Studies.....	5
MATERIALS AND METHODS.....	7
DNA Extraction.....	7
DNA Amplification.....	8
Gel Electrophoresis.....	9
DNA Purification.....	10
DNA Sequencing.....	11
Phylogenetic Analyses.....	11
RESULTS AND DISCUSSION.....	13
FIGURES.....	16
Figure 1.....	16
Figure 2.....	18
REFERENCES.....	20
APPENDICES.....	23
A. Specimen Localities.....	23
B. Primers.....	25
C. Sequence Data.....	27

## INTRODUCTION

With more than 3000 species and 15–20 new species described each year, the systematics and evolutionary history of snakes is becoming well-documented (Greene 1997; Vidal *et al.*, 2009). Current hypotheses suggest that they diverged from lizards, but their delicate skeletons fossilize poorly, and as a result, snake origins are best understood from molecular analyses. Recently, several such analyses have revealed a large hidden diversity of snake species, primarily among the burrowing forms (Thomas & Hedges, 2007; Adalsteinsson *et al.*, 2009; Vidal *et al.*, 2010). It is from this context that I began a molecular phylogenetic study of Cuban burrowing snakes.

### **Scolecophidians (worm-like snakes)**

Scolecophidians, more commonly known as worm-like snakes, are one of the two major groups of snakes. The Infraorder Scolecophidia comprises about 400 recognized species, with an average of five additional species identified each year (Uetz *et al.*, 2010). Most species are small, only ranging from about 10–30 cm in length, have smooth scales and reduced eyes (Greene 1997). Their tubular shape, small size, and pink to brown coloration often leads non-scientists to mistake the group for earthworms (Thomas & Hedges 2007). The species burrow in loose soil and feed on social insects such as ants, termites and their larvae. And though scolecophidians display exceptional diversity and are widely distributed among six continents, most are localized to southern continents and tropical islands (Vidal *et al.* 2010).

### ***Typhlopidae* (the blindsnake family)**

The five families of Scolecophidia— Anomalepididae, Gerrhopilidae, Leptotyphlopidae, Typhlopidae, and Xenotyphlopidae—diverged between 159 and 97 million years ago, during the Jurassic and Cretaceous periods (Vidal *et al.* 2010).

Typhlopidae is the largest family within Scolecophidia, comprising 260 recognized species.

The family includes four major clades that diverged between 63–59 million years ago and are categorized geographically as Eurasian (includes Australian species), South American (includes West Indian species), African, and Malagasy (Vidal *et al.* 2010).

About 30 million years ago, the West Indian clade diverged from the South American clade during the mid-Cenozoic era (Hedges 2006; Vidal *et al.* 2010). The subsequent radiation coincides with the radiations of many other West Indian terrestrial vertebrates and includes *Typhlops* species inhabiting the Hispaniola, Jamaica, the Puerto Rican Bank, and the Lesser Antilles. Later, branching from the Hispaniolan clade probably resulted in the diversification and dispersal of *Typhlops* to Cuba and the Bahamas (Vidal *et al.* 2010).

### **West Indian snakes of the Genus *Typhlops***

Although *Typhlops* is considered rare and inconspicuous, the species are numerically significant in the West Indies. Forty species are recognized in the Antilles alone (Thomas & Hedges 2007), and the number of species is expected to grow significantly. The first species of *Typhlops* was identified in 1758 by Carl Linnaeus as *Typhlops lumbricalis*. Further investigation of the genus revealed a multitude of species in a short period of time, displaying the substantial diversity among West Indian *Typhlops* (Thomas 1976).

### ***Typhlops lumbricalis***

In 1919, *Typhlops lumbricalis* was thought to occur throughout the entire West Indies and on mainland of South America (Barbour & Ramsden 1919). Soon thereafter, the concept of *Typhlops lumbricalis* was modified to include only populations in Cuba, the Bahamas, and Hispanola (Cochran 1924). Then in 1976, the definition of the species was clarified to recognize its low longitudinal scale counts and 20 anterior scale rows (Thomas, 1976). Further morphological research determined that *T. lumbricalis* was distinct from the clade of Hispanolian species. The analyses indicated that *T. lumbricalis* arose by dispersal from Hispanola, and further restricted the species' locality to the island of New Providence, Bahamas (Thomas 1989).

The successive modifications of the taxonomic concept of *T. lumbricalis* suggested cryptic blindsnake diversity in Cuba and Hispanola, as with each research investigation, further speciation was revealed. This hypothesis was supported by recent studies that pointed to significant hidden species diversity. Based on previous molecular genetic analyses on Australian and West Indian scolecophidians, it had been estimated that there is a large hidden diversity of blindsnakes (Aplin & Donnellan 1993; Hedges and Thomas 1991; Rabosky *et al.*, 2004; Thomas & Hedges 2007). Further, because the burrowing behavior of all typhlopids leads to increased isolation, the extensive diversity found in previous studies was surmised to be mirrored in *T. lumbricalis* (Thomas & Hedges 2007).

### **Early Morphological Studies on *T. lumbricalis***

Because of the discovery of unrecognized diversity within blindsnakes, material of the wide-ranging Cuban species, *Typhlops lumbricalis*, was collected to survey population

variation. Clues that there may be hidden species came to light in 1957 when Albert Schwartz first examined morphological variation. He found that western populations in Pinar Del Rio had lower middorsal scale counts than other samples and restricted the geographical range of *T. lumbricalis* to Cuba, but Schwartz did not recognize cryptic Cuban species (Schwartz & Thomas 1975).

Richard Thomas (1976) further examined variation in *T. lumbricalis* by scoring various morphological characteristics such as head shape, rostral shape, rostralsnasal pattern, total length, and number of scale rows. After scoring several hundred specimens, he realized that the *T. lumbricalis* spanning Cuba was distinct from samples from the Bahamas. Thomas thereby restricted the type-locality to the island of New Providence, Bahamas in his 1976 Ph. D. dissertation (Thomas 1976). He also noted the existence of cryptic species formerly classified as *T. lumbricalis* in Cuba, but waited over a decade before further examining the specimens.

### **Molecular Evolutionary Genetic Studies**

Between 1988 and 1994, Richard Thomas and S. Blair Hedges made extensive collections of typhlopids within Cuba. Because the island is large, there is a wide range of and terrestrial habitats. Hedges and Thomas collected samples from locations in the eastern region (El Acueducto, Los Calderos, Monte Libano, Altiplanicie de Nipe, Minas del Frio, Rio Palma, etc.), as well as some from the western region (La Jaula, San Antonio de los Banos, etc.) and west-central region (Narigon)

In addition to their hand collected samples for molecular and morphological work, Thomas and Hedges obtained preserved specimens from the Institute of Ecology and

Systematics and the National Museum of Natural History in Havana. They first surveyed the Antillean *Typhlops* speciation by performing morphologic analyses on *Typhlops biminiensis* and *Typhlops hectus*. After discovering significant variation in the specimens' DNA (S.B. Hedges, unpublished), Thomas and Hedges analyzed morphological characters and described 11 new species of blindsnakes (Thomas & Hedges, 2007).

Bolstered by the significant genetic variation within *T. biminiensis* and *T. hectus*, research on Cuban *Typhlops lumbricalis* then turned to molecular analyses. Due to the burrowing nature of the species, *Typhlops* have a relatively conserved scalation, leading to a reduction in physiological features. This lack of morphological distinction—specifically the reduction of head scales and bodily characters—justifies the sole use of molecular analyses for species identification in this thesis (S. B. Hedges, unpublished).

To uncover cryptic species, four mitochondrial genes (12S rRNA, 16S rRNA, Cytochrome B, and ND2) were sequenced and examined using phylogenetic analyses. Once the phylogenetic trees were generated, species groups and cryptic species were delineated based on statistically significant branches. Later morphological studies confirmed the genetic results.

### **Future Morphological Studies**

When the molecular analyses revealed cryptic species, we took an alternative approach to conventional morphological analyses. After cryptic species were defined based on DNA data and phylogenetic analyses, the morphology of the specimens was analyzed. Because conventional morphological character classification had not highlighted the significant diversity within *Typhlops*, Thomas and Hedges analyzed the specimens using



unconventional taxonomical characters such as head scale shapes. Once the hand-collected and museum samples were scored based on these innovative morphological characters—such as rostronasal complex shape and labial flare—the results agreed with the molecular evidence. The morphological data will be discussed in a later paper (Thomas *et al.*, unpublished), as it is an ongoing project.

## MATERIALS AND METHODS

All molecular data were obtained from animal specimens collected by hand by S. Blair Hedges and Richard Thomas. These specimens were collected throughout Cuba and later preserved in 90% ethanol or liquid nitrogen. Tissue samples were stored at -80°C in a laboratory freezer. Field and lab research procedures were approved by the Institutional Animal Care and Use Committee of the Pennsylvania State University (#17623).

### *DNA Extraction*

The QIAGEN DNeasy Tissue Extraction Protocol was used to extract DNA from the liver or muscle of each tissue sample. First, the sample (25 mg) was placed into a 1.5ml microcentrifuge tube with ATL buffer (180 µl) and proteinase K (20 µl). The tube was then vortexed for 10–15 seconds before incubating for two hours.

Once the tissue was completely lysed in the water bath, the microcentrifuge tube was vortexed for 10 seconds. AL buffer (200 µl) was added to the tube and vortexed again for 10 seconds. Then, 98% ethanol (200 µl) was added to the microcentrifuge tube and vortexed. The liquid solution was then transferred to a DNeasy mini spin column 2 ml collection tube. The spin column was centrifuged at 8,000 rpm for 60 seconds, and the supernatant was discarded.

The remaining DNeasy spin column was placed into a new collection tube. The AW1 buffer (500 µl) was then added and centrifuged at 8,000 rpm for 60 seconds. Again, the supernatant was discarded, and the DNeasy spin column was placed into a new collection tube. AW2 buffer (500 µl) was pipetted into the spin column and centrifuged at 14,000 rpm for three minutes. The supernatant was discarded, and the DNeasy mini spin column was

placed into a new collection tube. AW2 buffer (500 µl) was added again and centrifuged at 15,000 rpm for 60 seconds. The flow through the collection tube was discarded.

The DNeasy mini spin column was placed into a 1.5 ml microcentrifuge tube. AE buffer (200 µl) was pipetted into the tube and left on the benchtop for five minutes to incubate at room temperature. The microcentrifuge tube was then centrifuged at 8,000 rpm for 60 seconds. This time, the supernatant was collected and stored in the laboratory refrigerator. To extract the maximum amount of DNA from the liver sample, AE buffer (200 µl) was again added to the DNeasy mini spin column. The tube was centrifuged at 8,000 rpm for 60 seconds, and the flow through the tube was added to the previously collected supernatant in the laboratory refrigerator. The entire protocol resulted in 400 µl of extracted solution to be used for DNA amplification.

### ***DNA Amplification***

Four mitochondrial genes (12S rRNA, 16S rRNA, Cytochrome B, and ND2) were amplified with polymerase chain reactions (PCR). The 12S ribosomal gene was amplified using three overlapping primer pairs: 12L11 and 12H10 (420 bp); 12L15 and 12H49 (345 bp); and 12L48 and 12H48 (228 bp). The 16S ribosomal gene was amplified with a two sets of primers: 16L9 and 16H9 (406 bp); and 16L52 and 16H55 (362 bp). The Cytochrome B gene was amplified using eleven sets of overlapping primers: Typh F and Typh R (568 bp); Typh LUF and Typh LUR (512 bp); Typh F1 and Typh R1 (249 bp); Typh F2 and Typh R2 (388 bp); Typh F3 and Typh R3 (268 bp); Typh F5 and Typh R4 (206 bp); Typh F6 and Typh R6 (314 bp); Typh F7 and Typh R7 (350 bp); Typh F10 and Typh R10 (234 bp); Typh F11 and Typh R11 (270 bp); and Typh F12 and Typh R12 (284 bp). The ND2 gene was

amplified using five overlapping sets of primers: NDF1 and NDR1 (469 bp); ND2F1 and ND2R3 (292 bp); ND2F4 and ND2R4 (254 bp); ND2F5 and ND2R5 (265 bp); and ND2F6 and ND2R6 (213 bp) (See APPENDIX for primers sequences).

To begin the DNA amplification process, a solution was made that provided the proper medium for DNA replication. The mixture was made by combining dH<sub>2</sub>O (23 µl), mitochondrial dNTP (20 µl), thermal buffer (5 µl), a leading strand primer (1 µl), lagging strand primer (1 µl), and Taq polymerase (0.2 µl) into a 1.5 ml microcentrifuge tube. The solution was then vortexed for 10 seconds and centrifuged for 10 seconds before being allocated to individual PCR tubes. With a pipette, 49 µl of solution was transferred to 0.2 µl PCR tubes and combined with 1 µl of the extracted DNA sample. The extracted DNA sample was not added to one of the microcentrifuge tubes to later serve as the negative control. Each PCR tube was vortexed for 10 seconds and then centrifuged for 10 seconds before being placed into a thermocycler. The initial thermocycler temperature was set to 94°C for 150 seconds. The denaturing temperature was also set to 94°C for 30 seconds. The annealing temperature was set at 45–48°C for 45 seconds, and the extending temperature was set to 72°C for 45 seconds. The thermocycler was set to perform 37–43 cycles, and the holding time was set to 10 minutes. After the entire PCR process was completed, the solution was maintained at 4°C in the thermocycler until gel electrophoresis was performed.

### ***Gel Electrophoresis***

A high melting point agarose gel was prepared by combining agarose with 1x TBE (x M Tris, x M Borate, x M EDTA) solution. First, high melting agarose (0.6 g) was weighed out and added to a 200 ml Erlenmeyer flask with 1x TBE buffer (50 ml). The mixture was

stirred and then microwaved for 1 minute and 20 seconds until the agarose dissolved. Then, ethidium bromide (concentration) (4  $\mu$ l) was pipetted into the flask and stirred. The solution was transferred to a gel electrophoresis tray and left under the laboratory hood for 15 minutes to solidify.

Once the solution had turned into a gel, the PCR mixture was added. 6X loading dye (Bromophenol Blue, glycerol, dH<sub>2</sub>O, 2  $\mu$ l) was mixed with the PCR solution (5  $\mu$ l) and pipetted into the gel's loading well. In addition to the PCR solution, a 1000 base pair DNA ladder (5  $\mu$ l, NEB) was loaded into the gel, and the PCR solution without the extracted DNA sample served as the negative control. The gel was then placed inside a gel electrophoresis apparatus and covered with TBE solution. The machine was set to 130 volts and the banded samples were monitored as they migrated across the gel. After approximately 15 minutes, the gel electrophoresis apparatus was switched off to ensure sufficient separation without letting the samples migrate off of the gel.

Once the PCR samples had been sufficiently separated, the gel was examined under a UV light. Sharp, bright bands signified successful DNA amplification, and the sample was later purified. Smear, faint, or the absence of bands represented lack of DNA replication and the samples were re-amplified in the thermocycler with slight modifications to the PCR protocol.

### ***DNA Purification***

The gel electrophoresis process was repeated with slight modifications to isolate and purify the amplified DNA fragments. A low melting EEO gel was prepared by combining low melting agarose (0.6 grams) and TAE buffer (50 ml) in an Erlenmeyer flask. The solution

was stirred and microwaved for 1 minute and 20 seconds. Ethidium bromide (5 µl) was pipetted into the flask and the mixture was poured into a gel electrophoresis tray and left under the hood to cool for 20 minutes. Once the gel solidified, the remaining PCR sample (49 µl) was combined with 6X loading dye (3 µl) and added to the loading wells. The gel box was then added to the gel electrophoresis apparatus, covered with 1x TAE (recipe) buffer solution, and run at 130 volts for 15 minutes.

Once the bands had migrated sufficiently, they were visualized under a UV light and excised from the gel using a scalpel. The isolated gel fragment was then placed into a Montage DNA Gel Extraction tube and centrifuged for 10 minutes at 8,000 rpm to remove contaminants. The tube's filter was discarded and the remaining tube was stored in the laboratory freezer at -4°C until the sample was ready to be sequenced.

### ***DNA Sequencing***

To sequence the DNA, the purified samples were pipetted into a ThermoGrid PCR plate. Two wells were designated for each sequence, and the sample (2 µl) was combined with diluted forward and reverse strand primers (2 µl). Once the plate was completely filled, it was registered and taken to the Penn State Nucleic Acid Facility for nucleotide sequencing. Both the forward and reverse directions of each fragment were sequenced and uploaded to the facility's database.

### ***Phylogenetic Analysis***

Once the sequencing results were downloaded from the Penn State Nucleic Acid Facility, forward and reverse primer reads were used to generate a consensus sequence and

conflicts between the two reads were resolved using the DNA sequencing chromatogram. The set of consensus sequences were aligned in the MEGA v5.0 program (Tamura *et. al* 2010). All mitochondrial gene sequences (12S rRNA, 16S rRNA, Cytochrome B, and ND2) were first concatenated to form a single master file. The genetic information was then analyzed with Maximum Likelihood (ML) tree-building methods. ML was performed with the most complex model (GTR + I + G) with 100 bootstrap replications. *Typhlops notorachius* was used to root the tree, and *T. eperopeus*, *T. pusillus*, and *T. schwartzi* were used as additional (secondary) outgroups. These outgroups were selected based on a higher-level study using nuclear genes (Vidal et al. 2010) and other evidence (Thomas & Hedges 2007).

## RESULTS AND DISCUSSION

After the data were sequenced and aligned in MEGA v5.0, two phylogenetic trees were generated using Maximum Likelihood (ML) analyses. The first ML tree (Fig. 1) included all four mitochondrial genes (12S rRNA, 16S rRNA, Cytochrome B, and ND2). The data set included 82 specimens, five outgroups (*T. eperopeus*, *T. notorachus*, *T. pusillus*, *T. schwartzi*, and *T. titanops*), and 2,923 total base pairs. The additional ML tree (Fig. 2) was generated using only data from the Cytochrome B gene. The data set included 82 specimens, five outgroups, and 1,072 base pairs. Bootstrap values of 95% or higher were considered significant.

Although there is minor variation when comparing the concatenated phylogenetic tree and Cytochrome B phylogenetic tree, the general topology is consistent. Both analyses support the division of samples into six major species groups. In addition, both trees are consistent in the specimen groupings within each taxon. Although some of the major nodes lack significant bootstrap values, the distinct groupings of specimens, morphological differences, association with geography, and significant genetic support (for most clades) suggest that these groups represent undescribed species.

The results from both trees indicate that the populations formerly identified as *Typhlops lumbricalis* in Cuba actually comprise six species groups: Species Groups 1, 2, 3, 4, 5, and *T. lumbricalis*. In all, the phylogenetic trees reveal at least 15 cryptic species, and the molecular data are supported by physical characters in ongoing morphological studies in the Hedges Laboratory (Thomas *et al.*, unpublished)

Species Group 1 consists of one species, *Species A*, and is spread throughout the western portion of the Sierra Maestra and adjacent lowland areas in Cuba.

Species Group 2 includes *Species 2* and *Species 3*. *Species 2* is distributed in the



central uplands of eastern Cuba. *Species 3* is distributed in Yerba de Guinea, Meseta del Guaso, and the southwest Santiago de Cuba Province.

Species Group 3 comprises *Species D* and *Species E*. *Species D* is found in the foothills of Sierra Nevada. *Species E* is spread throughout Loma de la Mensura.

Species Group 4 consists of *Species F*, *Species G*, *Species H*, *Species I*, and *Species J*. *Species F* is distributed in the Guantanamo province. *Species G* is distributed in Guantanamo province. *Species H* is also found in the Guantanamo province. *Species I* is spread throughout the Guantanamo Province just to the east of Guantanamo Bay. *Species J* is only found on the *Isla de Juventud*.

Species Group 5 includes *Species K*, *Species L*, and *Species M*. *Species K* is dispersed in San Diego de los Banos in Habana Province and throughout the Pinar del Rio Province. *Species L* is found in the western outskirts of Havana and near Sancti Spiritus. *Species M* is spread throughout northern and central Camaguey.

The phylogenetic analyses confirm Richard Thomas' 1976 thesis work and support the localization of *T. lumbricalis* to the Grand Bahamas Bank islands. The species is categorized within the *Typhlops lumbricalis* species group with *T. silus*, *Species N*, and *Species O*. *Species N* is found in the Banes and Cabo Cruz areas of Cuba. *Species O* is distributed throughout south coast of the Granma Province.

As a general feature of blindsnakes, their conservative scalation causes a reduction in conventional morphological characters. The feature is responsible for the previous lack of species detection and corroborates the need for molecular studies to uncover blindsnake diversity. In addition, because the geographic area of these species is relatively small, there could be an abundance of cryptic species if a larger geographic range was examined (Vidal *et*

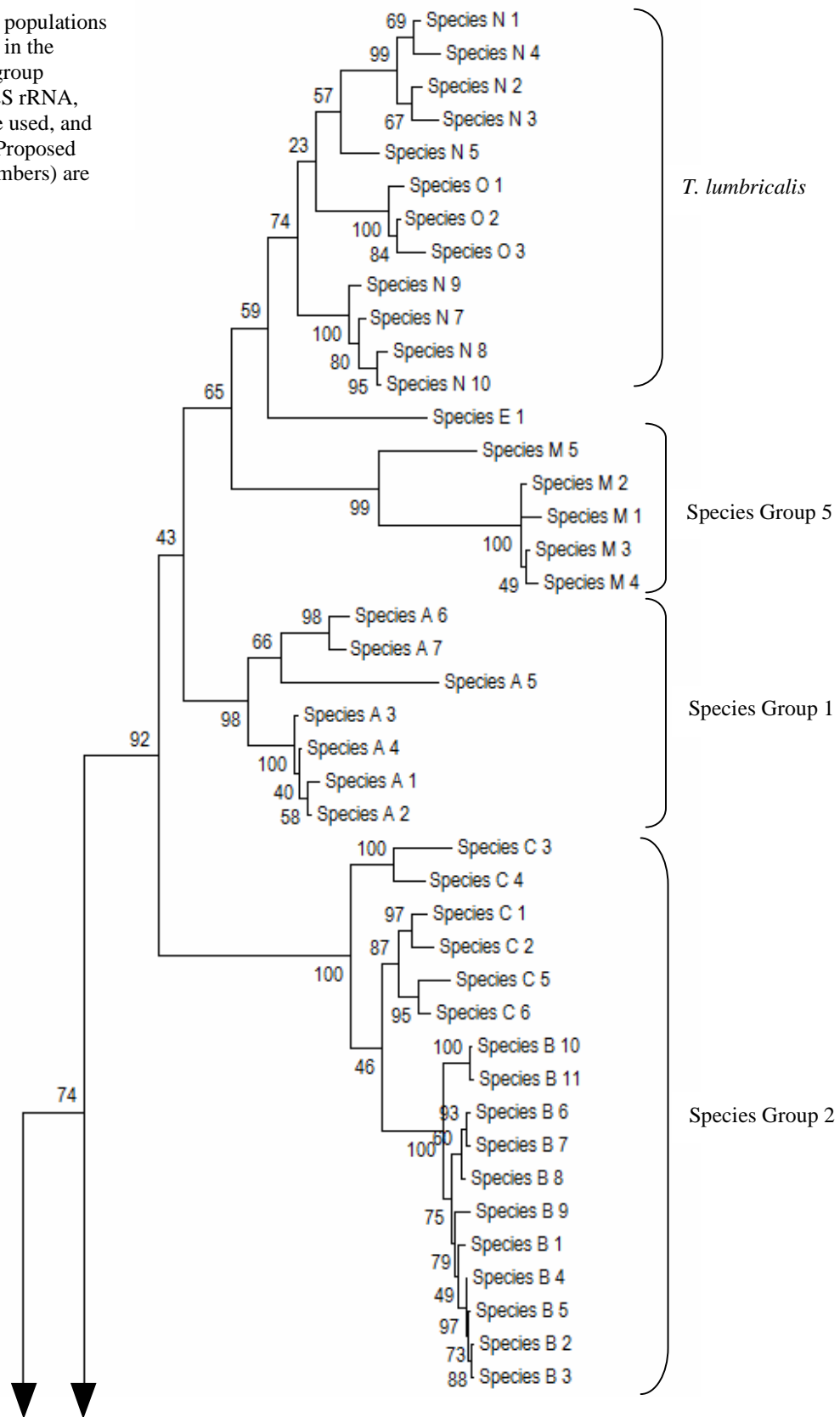
*al.* 2010). This notion is supported by recent studies in Australia and the West Indies.

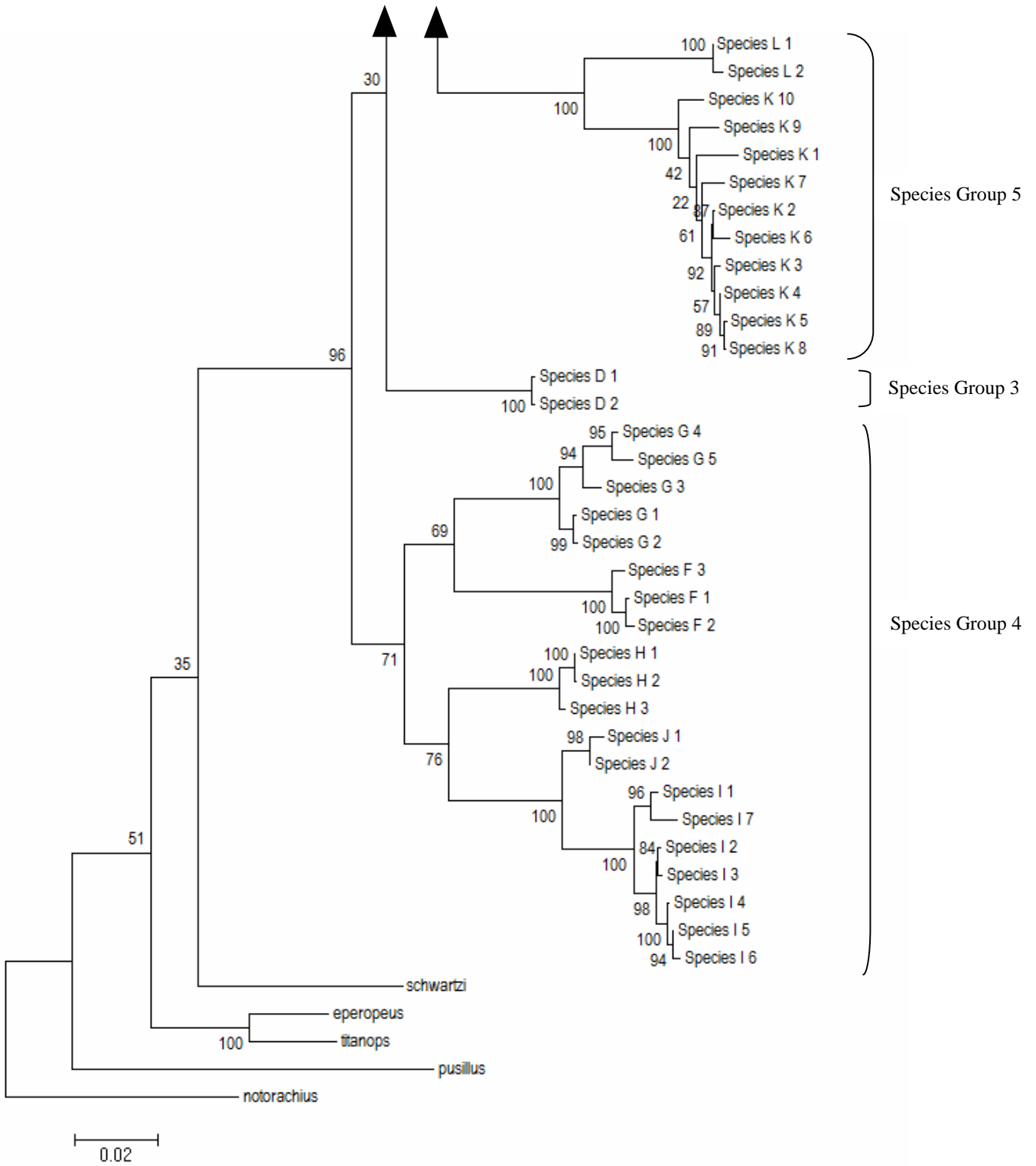
Molecular analyses indicate an abundance of cryptic species, suggesting that there are many undescribed species of blindsnakes and other burrowing species worldwide (Aplin & Donnellan 1993; Hedges and Thomas 1991; Rabosky *et al.*, 2004; Thomas & Hedges 2007).

Of the 15–20 species described each year (Patterson 2000; Uetz 2004), only about five of these new species are blindsnakes, indicating that the introduction of at least 15 new species within Cuba alone is unexpected. Further, if this examined group is representative of other scolecophidian species, a large number of cryptic species could exist within blindsnakes.

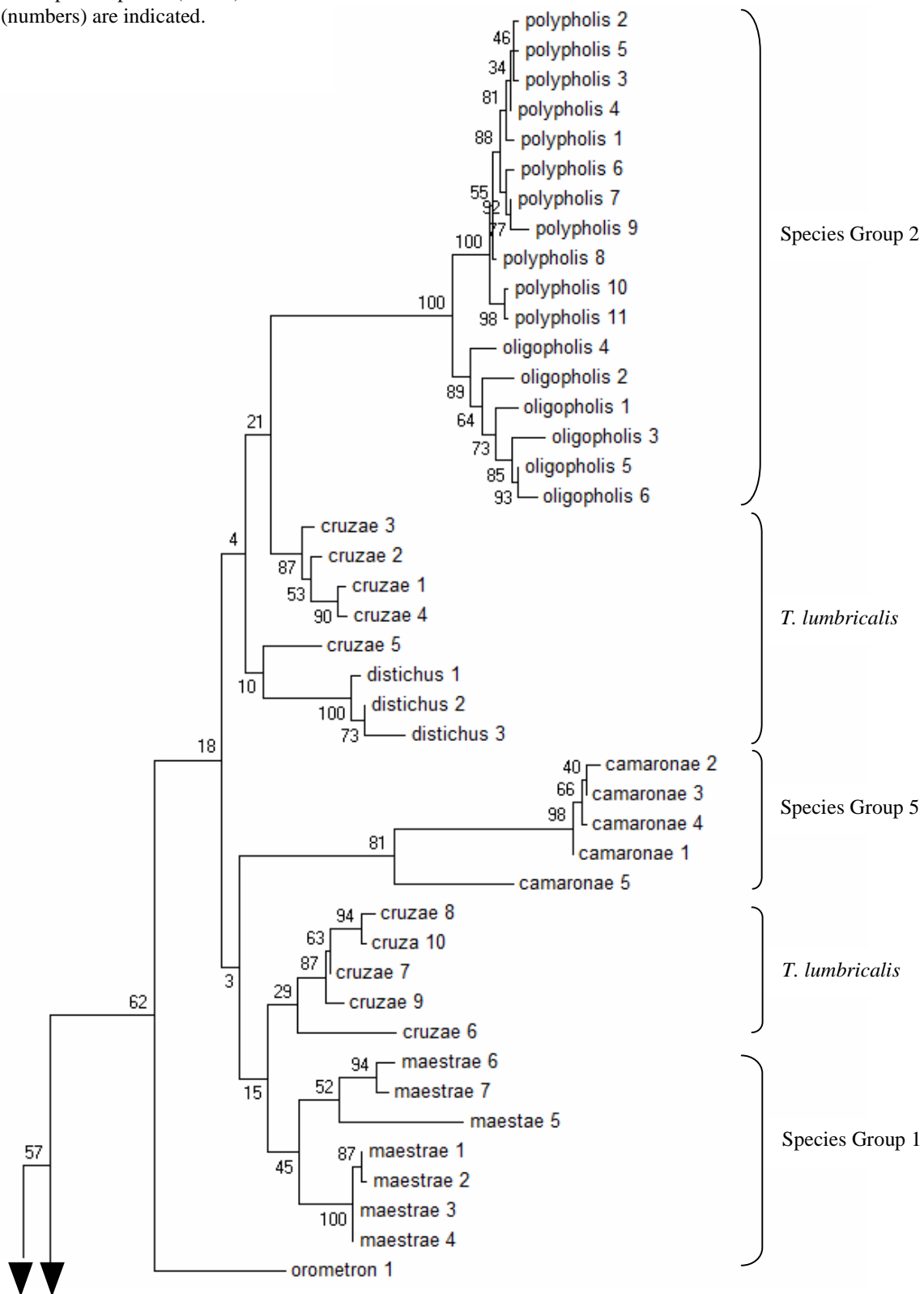
Furthering the knowledge of snake diversification provides information critical for determining the origin of snakes (Vidal *et al.* 2010). In addition, the uncovering of such a large diversity of blindsnakes implies the need for conservation. The discovery of cryptic species in Cuba corroborates the claim that the Caribbean is a “hotspot” for snake diversity (Meyers *et al.* 2000). And since these species have such small ranges, they are at a higher risk of extinction. This rapid radiation, combined with the restricted ranges of the cryptic blindsnakes, argues the need for conservation practices within the West Indies (Meyers *et al.* 2000). The pattern of speciation of tropical blindsnakes within small geographic areas necessitates protection within biodiversity hotspots to ensure species survival.

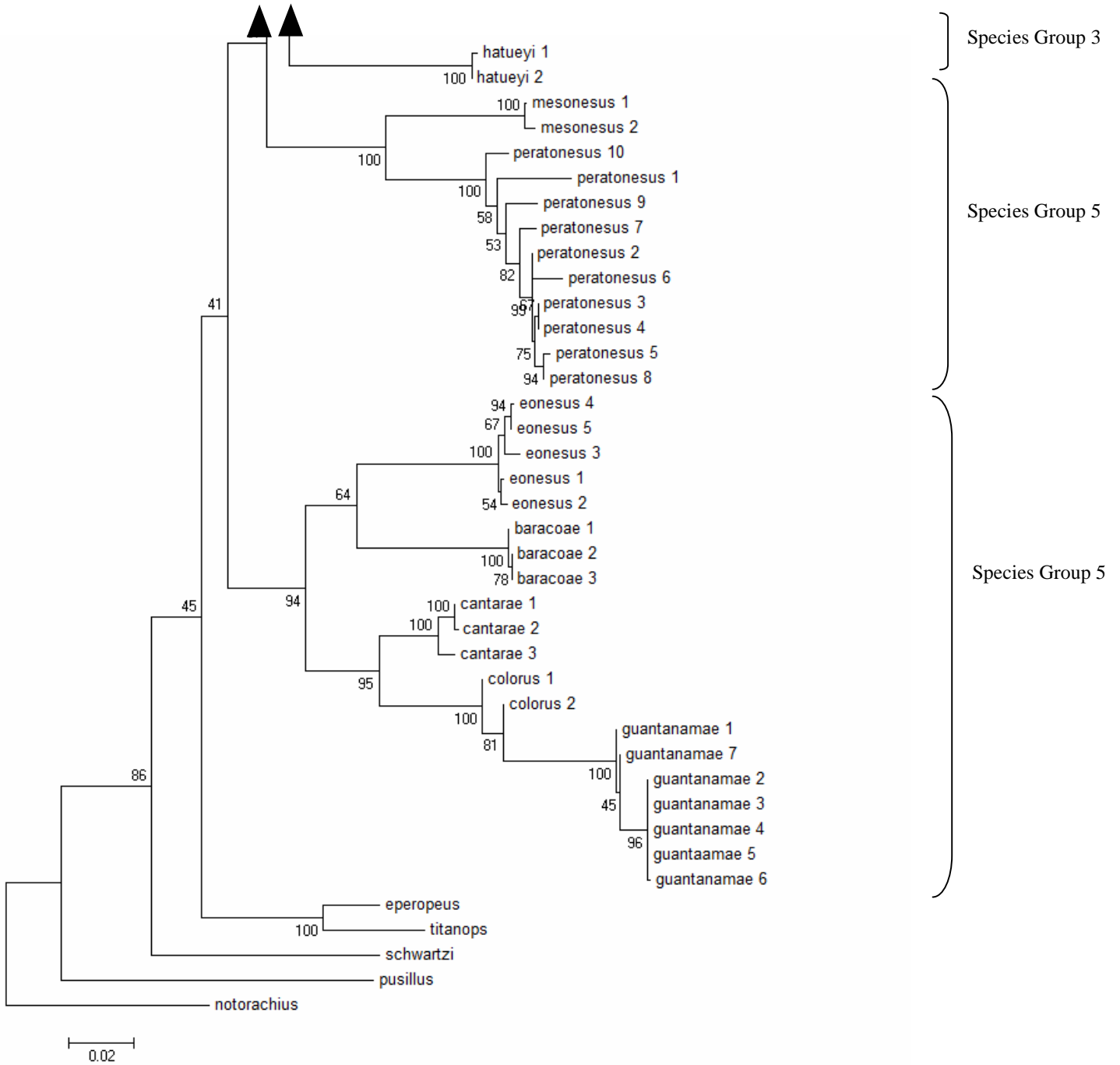
**Figure 1.** ML molecular phylogeny of populations of Cuban blindsnakes currently placed in the species *Typhlops lumbricalis*, and outgroup species. Four mitochondrial genes (12S rRNA, 16S rRNA, Cytochrome B, ND2) were used, and bootstrap values are shown at nodes. Proposed species (letters) and species group (numbers) are indicated.





**Figure 2.** ML molecular phylogeny of populations of Cuban blindsnakes currently placed in the species *Typhlops lumbricalis*, and outgroup species for the Cytochrome B Gene. Bootstrap values are shown at nodes. Proposed species (letters) and species group (numbers) are indicated.





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## APPENDIX A

Typhlopoid species, their localities, and assigned numbers

<b>Cuba</b>		
Species	Locality	Specimen #
Species F 1	Baracoae	SBH 190231
Species F 2	Baracoae	SBH 190232
Species F 3	Baracoae	SBH 190233
Species M 1	Camaron Grande	SBH 193733
Species M 2	Camaron Grande	SBH 193762
Species M 3	Camaron Grande	SBH 193763
Species M 4	Camaron Grande	SBH 193764
Species M 5	Alto de Mamey	SBH 193788
Species H 1	La Cantera	SBH 190565
Species H 2	La Cantera	SBH190566
Species H 3	La Cantera	SBH 190567
Species J 1	Rio Cuzco	SBH 190941
Species J 2	Rio Cuzco	SBH 190942
Species N 1	Ojo del Toro	SBH 193770
Species N 2	Ojo del Toro	SBH 193924
Species N 3	Ojo del Toro	SBH 193771
Species N 4	Ojo del Toro	SBH 193772
Species N 5	Pilon	SBH 193773
Species N 6	Playas los Coloradas	SBH 193809
Species N 7	Playas los Coloradas	SBH 193916
Species N 8	Playas los Coloradas	SBH 193921
Species N 9	Playas los Coloradas	SBH 193922
Species N 10	Playas los Coloradas	SBH 193923
Species O 1	Playas los Coloradas	SBH 193810
Species O 2	Punta de Piedra	SBH 193945
Species O 3	Punta de Piedra	SBH 193953
Species G 1	El Yunque de Baracoa	SBH 190202
Species G 2	El Yunque de Baracoa	SBH 190203
Species G 3	La Tinta	SBH 191297
Species G 4	Los Calderos	SBH 191324
Species G 5	Los Calderos	SBH 191325
Species I 1	El Aqueducto	SBH 190997
Species I 2	La Fangosa	SBH 191018
Species I 3	La Fangosa	SBH 191019
Species I 4	La Fangosa	SBH 191020
Species I 5	La Fangosa	SBH 191021
Species I 6	La Fangosa	SBH 191022
Species I 7	El Aqueducto	SBH 191332
Species D 1	Guama	SBH 191418

Species D 2	Guama	SBH 191419
Species A 1	Minas del Frio	SBH 193614
Species A 2	Minas del Frio	SBH 193615
Species A 3	Minas del Frio	SBH 193616
Species A 4	Minas del Frio	SBH 193617
Species A 5	Rio Palma	SBH 193753
Species A 6	Santo Domingo	SBH 193765
Species A 7	Santo Domingo	SBH 193766
Species L 1	Narigon	SBH 191538
Species L 2	Narigon	SBH 193539
Species C 1	La Hembrita	SBH 190943
Species C 2	La Hembrita	SBH 190944
Species C 3	Yerba de Guinea	SBH 190945
Species C 4	La Tagua	SBH 190981
Species C 5	Monte Libano	SBH 191186
Species C 6	Monte Libano	SBH 191187
Species E 1	Loma Mensura	SBH 194029
Species K 1	Jardin Botanico Nacional	SBH 172600
Species K 2	Soroa	SBH 192458
Species K 3	Soroa	SBH 172604
Species K 4	Soroa	SBH 172605
Species K 5	Soroa	SBH 172606
Species K 6	Soroa	SBH 172607
Species K 7	San Antonio de los Banos	SBH 172608
Species K 8	Soroa	SBH 172880
Species K 9	San Miguel	SBH 191535
Species K 10	La Jaula	SBH 191551
Species B 1	La Tabla	SBH 190612
Species B 2	La Tabla	SBH 190613
Species B 3	La Tabla	SBH 190614
Species B 4	La Tabla	SBH 190615
Species B 5	La Tabla	SBH 190616
Species B 6	La Tabla	SBH 191415
Species B 7	La Tabla	SBH 191416
Species B 8	La Tabla	SBH 19417
Species B 9	La Tabla	SBH 193364
Species B 10	La Pimienta	SBH 266332
Species B 11	La Pimienta	SBH 267621
<i>T. notorachius</i>	Guantanamo	SBH 191332

### Dominican Republic

Species	Locality	Specimen #
<i>T. eperopeus</i>	Barahoa	SBH 266250
<i>T. pusillus</i>	San Juan	SBH 266322
<i>T. schwartzi</i>	El Seibo	SBH 192453
<i>T. titanops</i>	Pedernales	SBH 160293

## APPENDIX B

List of primers used for sequences newly generated for this study.

### 12S Gene

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#### Forward Primers

12L11: 5' – GAAGGWGGATTTAGTAGTAAA – 3'  
12L15: 5' – CAAACTGGGATTAGATACCCCACTAT – 3'  
12L48: 5' – TAGAGGAGCCTGTCCTATAATCGA – 3'

#### Reverse Primers

12H10: 5' – CACYTTCCRGTRCRYTTACCRGTGTTACGACTT – 3'  
12H48: 5' – CAGGGCARTGTGTTCAAGCAGG – 3'  
12H49: 5' – TAGGAATGTAGCCCATCTCTG – 3'

### 16S Gene

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#### Forward Primers

16L9: 5' – CGCCTGTTTATCAAAAACAT – 3'  
16L52: 5' – AAGGTAATGCCTGCCAGTG – 3'

#### Reverse Primers

16H9: 5' – CCGGTCTGAACTCAGATCACGT – 3'  
16H55: 5' – AAGCTTCACAGGGTCTTCTCGTC – 3'

### Cytochrome B Gene

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#### Forward Primers

TyphF: 5' – CTGAAAAYCACCGTTGTTATTCAACTA – 3'  
TyphLUF: 5' – TGGGGGTTAAITCMGAYACRGAYAAAAT – 3'  
TyphF1: 5' – TTCTTACACGARACYGGRTCAA – 3'  
TyphF2: 5' – TGAGGNGGRITTYTCYATYAGCA – 3'  
TyphF3: 5' – GGRGCMTCNCTDITCTTYRITYTGCA – 3'  
TyphF5: 5' – ACACMTGRTTYATYGGRGTRACYATCCT – 3'  
TyphF6: 5' – ACCCCVRTYCAATYAARCCAGA – 3'  
TyphF7: 5' – TYCCWAACTDYTARGHGACCCAGA – 3'  
TyphF10: 5' – TCCGGACTATYYTAGCYATACTACTAC – 3'  
TyphF11: 5' – TTYYTRGCYATRCACACTACAGCAGA – 3'  
TyphF12: 5' – AATYCAAATCYTYTCCGGACT – 3'

#### Reverse Primers

TyphR: 5' – CTYTGGTTTACAARAACARTGCTTT – 3'  
TyphLUR: 5' – ATYGATCGTAGGATGGCRTAGGCRAATA – 3'  
TyphR1: 5' – ATTRTTARYACTARAATRGATGC – 3'  
TyphR2: 5' – GCYTTTGMRAARTTTTCTGGGTC – 3'  
TyphR3: 5' – GTRAAGAATCGKGTARYGTTGA – 3'  
TyphR4: 5' – TGASTMGCAACAAAACCAGTAGA – 3'  
TyphR6: 5' – ACTGGTTTTGTTGCKASTCAKGTTA – 3'

TyphR7: 5' – RAKRATRAAKGGGTRYTCTACTGG – 3'  
TyphR10: 5' – GCAGTTAGTATTGTTGCTAATAGG – 3'  
TyphR11: 5' – GCTAATAGGATRGTCACYCCAATGA – 3'  
TyphR12: 5' - GTTAGTAGAATAATCACTCCAATGA – 3'

### **ND2 Gene**

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#### Forward Primers

ND2F1: 5' – CAGCTAAATAAGCTMTCGGGCCCATAACC – 3'  
ND2F4: 5' – ACTGGATTYWTRCCWAAATGAAT – 3'  
ND2F5: 5' – CTAAAYCAAACACAACACTMCGA – 3'  
ND2F6: 5' – CCATTTCACTTCTGAGTRCCAGAAGT – 3'

#### Reverse Primers

ND2R1: 5' – ACTTCTGGTACTCARAARTG – 3'  
ND2R3: 5' – GCTTTGAAGGCYSCTGGTTTA – 3'  
ND2R4: 5' – GATCCGATGTCTTTAATRGT – 3'  
ND2R6: 5' – TCGKAGTTGTGTTTGRTTTAG – 3'

## APPENDIX C

Sequence data for all four mitochondrial genes (12S, 16S, CytB, and ND2)

Species K 1

CytB

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--AAACTTTGGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC
TTAGCTATACATTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC
CGAAACGTAAACGCAGGGTGACTAATCCAAAATCTACACGCCAACGGAGCATCACTATTC
TTTATCTGCAGATATATTCACATCGCCCCGAGGTTTATACTACGGGTCATACATATACAAA
AATACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAAGTCTTTCCCTGGGA
TACGTACGGCCATGAGGACAAAATATCATTATGAGGAGCAACAGTAATCACTAAGTTACTC
TCTGCCATGCCCTATGTCGGAAACCACATTAGTAACATGAATTTGAGGGGGGTTTTCTATT
AGCAACTCAACATTAACCCGATTCTTTCACATTCCTACTTTATATTACCATTTCGTAATCATT
GCCCTAACAGCCATCCATATCCTGTTCTTACACGAAACCGGGTCAAACAACCCATTGGGG
GTTAATTCGGACACAGACAAAATCCCCCTCCACCATACTTCAACAATAAAAGACATTCTA
GGCATCACACTAACAAATGTTACCTTACTAGTTATAATCTTCTTTTTCCCTAATCTTTTA
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA
GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGCGGT
GTAATAGCACTACTAGCATCCATTCTAGTTCTAATAATTGTACCAATAATACACACTTCC
AAACAACGGACAAAAACCTTCAAACCCCTGTCACAAATCTGACTATGACTCCTACTAAGT
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTCATTATCCTA
GGACAACCTAACCTCCCTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCACCGC
ATATTAGAAAACAAAATTTATGTGACCCCTGCCCTAATAGCTTAGTACAAAGCA
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ND2

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ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT
TTTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAAACCC
CATCACCCACGTGCAATAGAAAGCAACAACAAAATATTTTTCTAACACAGGCTATAGCATCC
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAATAGGG
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT
TTAATTGTTTTGACATGACAAAAACTTGACCCATAGCCCTTATCCTCTCCTCAGAAGAA
ATTCTCCACCAAAAAACACTTCTTCTTTTCAGCCACACTTTCAATCATAATCGGAGGTTGA
GGCGGCCTAAATCAAACACAACCTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT
GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAAGTGAATCGCTCTCATTTATT
TATATTCTACTAACAACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT
AAAGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATT
CTTATATCACTTTCAGGTATACCACCTTAACAGGATTTATACCAAAATGAATTATTCTA
AAAGAATTAACAACCATAAATCTAATACCCTAGCTGTGACGGCAGCAGTTCTATCAATC
CTCAGTCTTTATTTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC
ACAACCACAAT
```

12S

```
GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCATA
TACAACCTAGAGGAGCCTGTCTTATAATCGATGATCCACGAAGGACCTCACACCCTTTG
CCCAACAACCTATATACCGCCGTGCAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG
CCGTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---
```

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAACCTGTTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCCAAAACAGGAAAAACACCACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAAGGTTTCGTTTGTTCACGATTAACAGT

Species K 2

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTTTTC  
TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTCATACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAACTGCTTTCCGGGA  
TACGTACTACCATGAGGACAAATATCGTTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCCTATGTTCGGAACCACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
ATTAATTCGACACAGACAAAATCCCCTTCCACCCATACTTCCACAATAAAAGACATTTCTA  
GGCATCACACTAACAATTTGTTACCTTACTAGTCATAATCTTTTTTTCCCAATCTTTTA  
GGCAGCCAGAAAATTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA  
GAATGATACTTCCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTATCACAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCTTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATATTAGAAAACAAAATATGTGACCCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCTATGATAGCAAAACCC  
CATCACCCAGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTTGACATGACAAAACTTGACCCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCTCCACAAAAACACTTCTTCTTTTCAGCCACACTTTCAATCATAATCGGAGGTTGA  
GGCGCCCTAAATCAAACACAACACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCTCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACAAACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTTTCAGGTGTACCACCTCTAACAGGATTTATACCAAAATGAATTAATCTA  
AAAGAATTAACAAACCATAACTAATACCCTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCATATA  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACTAACAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCGTCACCCCCATCAACACGCCCAGAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAACCTGTTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACTAACTTAACTTCAAACAAGGAAAAACACCCACCCAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAGTTTACGACCTCGATCTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K3

CytB

--AACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACACTACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTTTTC  
TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTCATACATATACAAA  
AACACATGATTTATTGGAGTAACACTATTCTACTAGCAACTATACTAACTGCTTTCTGGGA  
TACGTACTACCATGAGGACAAAATATCGTTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCTATGTCGGAACACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
ATTAATTCGGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAaAGACATTCTA  
GGCATCACTAACAATTGTTACCTTACTAGTCATAATCTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCCAGTCCACATTAACCA  
GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCAGTACTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTATCACAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCTTAATCTACTTCTCCATTTTCATTATCATCCTACCTCTCACCGCC  
ATATTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCACGTCGAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACATATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCGCATCAACTATTATTATACTATGGCCCTGTTAATAAAAAATAGGG  
GCAGACCAATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTTGACATGACAAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCTCCACCAAAAAACACTTCTTCTTTTCAGCCACACTTTCAATCATAATCGGAGGTTGA  
GGCGGCCATAATCAAAACAACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT



GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACCAACCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCATT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTTTCAGGTGTACCACCTCTAACAGGATTTATACCAAAATGAATTATTCTA  
AAAGAATTAACAAACCATAATCTAATACCACTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCAT  
TACAACCTAGAGGAGCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTACGGTACGGGTGATTTAATAGGGGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAAGCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCGTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACCTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCCAAAACAAGGAAAAACACCACCCACCAAGCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGACGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K4

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTTTTC  
TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTACATACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAACTGCTTTCCCTGGGA  
TACGTACTACCATGAGGACAAATATCGTTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCCTATGTGCGAACCACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATACTACCATTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
ATTAATTCGGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA  
GAATGATACTTCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTATCAAAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAACTAACCTCCTTAATCTACTTCTCATTTTTCAATTATCATCTACCTCACCAGCC  
ATATTAGAAAACAAAATATGTGACCCCTGCCCTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAATTTAAATACTCTCGCCGTAATTCCTATGATAGCAAACCC  
CATCACCACGTCGAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAAATAGGG  
GCAGCACCATTCTACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTGACATGACAAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCTCCACCAAAAAACACTTCTTCTTTTTCAGCCACACTTTCAATCATAATCGGGGGTTGA  
GGCGGCCATAATCAAAACAACACTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACGACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCATT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCATTTCAGGTATGCCACCTCTAACAGGATTTATACAAAATGAATTATTCTA  
AAAGAATTAACAAACCATAATCTAATACCACTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCAT  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTTATAAAGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCC  
CCGTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTATCAAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAATCCTATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCAAACAAGGAAAAACACCACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species K5

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTTTTC  
TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTCGTACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAACTGCTTTCTGGGA  
TACGTACTACCATGAGGACAAAATATCGTTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCTATGTCGGAACACATTAGTGACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACAAAACCGGATCAACAACCCATTAGGA  
ATTAATTCGGACACAGACAAAATCCCTTCCACCCATACTTACAATAAAAGACATTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA

GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTGCTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTATCACAAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACCAGTAGAACACCCATTTCATTATCCCTA  
GGACAACCTAACCTCCTTAATCTACTTCTCCATTTTCATTATCATCCTACCTCTCACCGCC  
ATATTAGAAAACAAAATTATGTGACCCCTGCCCTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTAAATAAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTTGACATGACAAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCTCCACCAAAAAACACTTCTTCTTTTCAGCCACACTTTCAATCATAATCGGGGGTTGA  
GGCGCCTAAATCAAACACAACACTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACGACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCATT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTTTCAGGTATGCCACCTCTAACAGGATTTATACCAAAATGAATTATTCTA  
AAAGAATTAACAAACCATAATCTAATACCCTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTGAAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTGAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCG  
CCCCTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA ---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCACGGCCGCGGTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACATA  
TTTATAAAAACCTGATCTTCCAGTTCAAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCCAAAACAAGGAAAAACACCACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K6

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACTACACAGCAGATATCTCCATAGCCTTCTCCTGAATCATTCACATTTCC  
CGAAACGTAAATGCAGGGTCACTGATCCAAAATCTACACGCCAACGGAGGATCACTTTTTC

TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTCATACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTTTATGCAACTATACTAACTGCTTTCCCTGGGA  
TACGTACTACCATGAGGACAAAATATCGTTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCCTATGTCGGAACCACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
ATTAATTCCGACACAGACAAAATCCCCTTCCACCATACTTCACAATAAAAGACATTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCCAGTCCACATTAACCA  
GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAACCTTCAAACCCCTATCACAAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCTTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCACCAGC  
ATATTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTGCGCATGAATAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTGACATGACAAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTTCTCCACAAAAACACTTCTTCTTTTCAGCCACACTTTCAATCATAATCGGAGGTTGA  
GGCGGCCATAATCAAAACAACACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTTTTCAGGTGTACCACCTCTAACAGGATTTATACAAAATGAATTATTCTA  
AAAGAATTAAACAAACATAATCTAATACCACTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCAT  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACTAACAGAAGGAGGATTTA  
GTAGTAAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCCTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTATCAAAAAATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAACCTGTTAATGGGTATTTTGTAGTTGGGGCACTTTG  
GAAAATAACTTAACTTCAAACAAGGAAAAAACACCCACCCCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAATGAAGGTTTAcGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K7

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTATTC  
TTTATCTGCATATACATTCACATCGCTCGAGGTTTATACTACGGGTCATACATATACAAA  
AACACATGATTTATTGGGGTAACTATTCTACTAGCAACTATACTAAGTCTTTCCCTGGGA  
TACGTACTACCATGAGGACAAATATCGTTATGAGGGGCAACAGTAATCACTAAGTACTC  
TCTGCCATCCCTATGTCGGAACCACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATACTACCATTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGG  
GTTAATTCGACACAGACAAAATCCCCTTCCACCCATACTTCCACAATAAAAGACATTTCTA  
GGCATCACATAACAATGTTACCTTACTAGCCATAATCTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTCAAAGCCAATCCCATACTACCCAGTCCACATTAACCA  
GAATGATACTTCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTGTCAAAAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTACTAACCCTGACTCGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCTTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATATTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCTATGATAGCAAAACCC  
CATCACCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTTGACATGACAAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCTCCACAAAAAACACTTCTTCTTTGAGCCACACTTTCAATCATAATCGGAGGTTGA  
GGCGCCCTAAATCAAACACAACACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACAAACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT  
AAAGATATTGGATCTACTTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTCTCAGGTATACCACCTCTAACAGGATTTATACCCAAATGAATTATTCTA  
AAAGAAATTAACAAACCATATCTAATACCCTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACCTCAAAGGACTTGACGGTGTCCACA  
TACAACCTAGAGGAGCTGTCTTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACAGCTCAGGTCAAGGGGTATTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCC  
CCGTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAAATCCTATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCCAAACAAGGAAAAACACCACCACCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species G1

CytB

--AACTTTGGCTCATTATTAATAATATGCTTAGCAATCCAAATCCTTTCCGGACTATTC  
CTAGCCATACACTACACAGCAGACATCACCTAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAATGCGGGTTGACTTATCCAAAATCTGCATGCCAACGGGGCCCTCCCTATTC  
TTCATCTGCATGTACATTACATTGCCCCGAGGACTATATTACGGGTCTACATATATAAAA  
AACACATGATTTATTGGGGTAACCATCCTACTAGCAACCATACTAACTGCCTTCCTAGGG  
TATGTTCTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCTGCCATTCCTACATTGGAACCACACTAGTAACATGAATCTGAGGCGGATTCTCCATC  
AGCAACTCAACTAACACGATTCTTACATTCCACTTTATACTACCATTTCGTAATTATC  
GCCCTCACAGCTATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCATACTTCAATAAAAAGACATTCTA  
GGAGTCGTAACAAATTGTACCCCTACTAGTCATGGTATTCTTTTTCCCAAACCTGTTA  
GGAGACCCAGAAAATCTCAAAGGCTAACCCCATATCCACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAATTAGGGGGC  
GTAATAGCACTACTAGCATCTATTCTAGTACTAATAATCATTCCAATAACCCACACTTCT  
AAACAACGAACAAAACCTTCAAACCTATATCAACAGATCCTGTCTATGAATGCTACTGTCC  
ACCATCCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTATCATCCTA  
GGACAATTAACCTCACTAATCTACTTCTCCATCTTCATCATTATCCTACCCCTCACCGCC  
ACATTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAATAAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTGCGATGACTAGGACTAGAATTAAACACTCTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTGTTTGCCGCCACAACAACGCCTCCATACTGGACTATGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTGCGCATAGAAAATAGGA  
TTAATTATCTTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GCTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGG  
GGAGGCCATAATCAAAACAACTGCGAAAATAATAGCCTTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTCTCCTAAAGTGACCATTATTGCTCTTATCATC  
TATATTCTATGACAACTCCAATATTTCTATTAATATTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCCGAAATGTGTCTCCACACATTATATCAATTTCTATATTAATC  
CTTATATCGCTTTCAGGGATAACCACATTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTTATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTTAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCCAGC  
ACCACCACAAT

12S

GGCCCCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG

CCAAACAACCTATATACCGCCGTCGAAAAGTTACCTTATGAGAGGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAACGGCCAAATGAAAAGTCCAGAGAGGAGGATTTA  
GTAGTAAAGCAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCGTACCCCCATCAACGCACCCGATAATAAATTAATAATACACCAGGGTTATAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAGgTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAACCCCATTAACCTATTAATGGGTATTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACAACATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species G2

CytB

--AAACTTTGGCTCATTATTAATAATATGCTTAGCAATCCAAATCCTTTCCGGACTATTC  
CTAGCCATACTACACAGCAGACATCACCCCTAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAATGCGGGTTGACTTATCCAAAATCTGCATGCCAACGGGGCCTCCCTATTC  
TTCATCTGCATGTACATTCACATTGCCCGAGGACTATATTACGGGTCTACATATATAAA  
AACACATGATTTATTGGGGTAACCATCCTACTAGCAACCATACTAAGCTTCCCTAGGA  
TATGTTCTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATTACCAACCTATT  
TCCGCCATTCCCTACATTGGAACCACACTAGTAACATGAATCTGAGGCGGATTCTCCATC  
AGCAACTCAACACTAACACGATTCTTACATTCACCTTTATACTACCATTCGTAATTATC  
GCCCTCACAGCTATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCAATAAAAAGACATTTCTA  
GGAGTCGTACTAACAATTGTACCCTACTAGTCATGGTATTCTTTTTCCCAAACCTGTTA  
GGAGACCCAGAAAATTTCAAAGGCTAACCCCATATCCACCCCAATCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAATTAGGGGGC  
GTAATAGCACTACTAGCATCTATTCTAGTACTAATAATCATTCCAATAACCCACACTTCT  
AAACAACGAACAAAACTTTCAAACCTATATCACAGATCCTGCTATGAATGCTACTGTCC  
ACCATCCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTATCATCCTA  
GGACAATTAACCTCACTAATCTACTTCTCCATCTTATCATTATCCTACCCCTCACCGCC  
ACATTAGAAAATAAATCATATGACCCCTGCCTTAATAGCTTAATAAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAGTTAAACACTCTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTGTTGCCGCCACAACAAACGCACTCCATACTGGACTATGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTGCGCATAGAAATAGGA  
TTAATTATCTTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GCTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGG  
GGAGGCCTAAATCAAACAACACTGCGAAAACCTAATAGCCTTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTCTCCTAAAGTGACCATATTGCTCTTATCATC  
TATATTCTATTGACAACTCCAATATTTCTATTAATATTATCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAATTTCTATATTAATC

CTTATATCGCTTTCAGGGATACCACCATTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTTATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTTAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCCAGC  
ACCACCACAAT

12S

GGCCCCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCAAACAACCTATATACCGCCGTCGAAAGTTTACCTTATGAGAGGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAACGGCCAAATGAAAAGTCCAGAGAGGAGGATTTA  
GTAGTAAAGCAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCCTCACCCCATCAACGCACCCGATAATAAATTAATAATACACCAGGGTTATAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAATTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTAACCTATTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACAACATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species F1

CytB

--AACTTTGGCTCACTATTAATAATATGCTTAGCAATTCAAATCCTTTCCGGACTATTC  
CTGGCCATGCACTACACAGCAGATATCACTCTAGCCTTCTCCTCAATTATCCATATTTCC  
CGAAACGTAAATGCAGGTTGACTTATCCAAAATCTACATGCCAACGGAGCCTCGCTATTC  
TTTATCTGCATATACATTCACATTGCCCGAGGATTATACTACGGGTCTACATATACAAA  
AACACCTGGTTCATCGGAGTAACTATCCTGCTAGCAACAATACTAACCGCCTTCCTAGGG  
TATGTTCTACCATGAGGACAAAATACACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCCGCCATTCCTACATCGGAACCACTAGTAACATGAATCTGAGGCGGATTCTCTATC  
AGCAACTCAACACTAACACGATTCTTACATTCCACTTTATACTACCATTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTGTTCTTACACGAAACTGGATCAAACAACCCACTAGGG  
GTTAACTCTGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTTTA  
GGCGTAGCACTAACCAATTGCCACCCCTACTAACCATAGTATTCTTCTTCCCAAACCTACTA  
GGAGACCCAGACAACTTCTCAAAAGCTAATCCCATATCCACCCCAATCCACATTAAGCCA  
GAGTGATATTTCTGTTTGCTTACGCCATCCTACGGTCTATCCCAAACAACTAGGAGGC  
GTAATGGCGCTACTAGCATCTATTCTAGTACTAATAATTATACCAATCACCCACACTTCC  
AAACAGCGAACCAACCTTCAAACCCATATCACAAATCCTGCTATGACTACTACTCACT  
ACAATCCTGCTATTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTCATCATCCTA  
GGACAATTAACCTCTCTAATCTACTTCTCCATTTTTATCATTATCCTACCTCTCACCGCC  
ACATTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAATTAAACACTCTGGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAGTACTTCTGACACAAGCCATAGCATCC



TCAATACTCCTGTTTGCTGCCACAACAAATGCACTCCATACTGGACTATGAGAGATCAAG  
TCTATGTCAATACCTGCATCAACTATTATTGTAACCATGGCTCTATTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTCCGTATGGAAATAGGC  
TTAATTATCTTGACTTGACAAAAACTAGCACCCATAGCCCTTATCCTTTTCATCAGAAGAG  
GCTCTCCACCAAAAAACACTCCTTATCTCAGCCACGCTCTCAATCATAAATTGGGGGATGA  
GGAGGACTAAATCAAACACAACCTCCGAAAACTAATAGTCTTTTTTCATCTATCTCCCATATC  
GGATGAATATTAATAACAGCTCTAATCTCCCCTAAAGTAACCATATCGCCCTTACCATC  
TATATCCTATTGACAACCCCAATATTTCTATTAATACTCTCAAATTCATCAAAAACTATT  
AAAGACATTGGCTCTGCCTGAAATGTATCTCCACATATTATATCAATTTCTATGCTAATC  
CTTATGTCACTTTCAGGAATACCACCATTAACAGGGTTTATGCCAAAATGAATTATCCTA  
AAGGAATTAACAAGCCACAACCTAATATCACTAGCTGCCATAGCAGCAATCTTATCAATC  
CTTAGCCTCTATTTTTACCTACATCTATCGTACGCCACAACCATAACAATCCCACCTAGC  
ACAATCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCCTTTG  
CCAAACAACCTATATACCGCCGTCGAAAGTTACCTTATGAAAGAAAAAAGTGAACACA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATAGGATGGCCAGAGATGGGCT  
ACATTTCTACAaAAGGAAAAACGAACGGCCAAATGAAAACTAGCCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
-----

16S

CGCCTGTTTTATCAAAAAATAGCCTTTAGCTAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAATTCACCTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCCGTATGAAAGGCCACATGAGAATCTGACTGTCCTTTGTAATTAA  
TTTATAAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCTATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTA AACCTATTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAACGAGAAAAAACA AACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCTTATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCAACGATTAACAGT

Species F2

CytB

--AACTTTGGCTCACTATTAATAATATGCTTAGCAATTCAAATCCTTTCCGGACTATTC  
CTGGCCATGCACTACACAGCAGATATCACTCTAGCCTTCTCCTCAATTATCCATATTTCC  
CGAAACGTAAATGCAGGTTGACTTATCCAAAATCTACATGCCAACGGAGCCTCGCTATTC  
TTTATCTGCATATACATTCACATTGCCCGAGGATTATACTACGGGTCTACATATACAAA  
AACACCTGGTTCATCGGAGTAACTATCCTGCTAGCAACAATACTAACC GCCTTCC TAGGG  
TATGTTCTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCCGCCATTCCTACATCGGAACCACACTAGTAACATGAATCTGAGGCGGATTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTCACATTCCTACTTTATACTACCATTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTGTTCTTACACGAAACTGGATCAAACAACCCACTAGGG  
GTTAACTCTGACACAGACAAAATCCCCTTCCACCCATACTTCCACAATAAAAGACATTTTA  
GGCGTAGCACTAACAATTGCCACCCTACTAACCATAGTATTCTTCTTCCCAAACCTACTA  
GGAGACCCAGACA ACTTCTCAAAGCTAATCCCATATCCACCCCAATCCACATTAAGCCA  
GAGTGATATTTCTGTTTGCTTACGCCATCCTACGGTCTATCCCAAACAACCTAGGAGGC  
GTAATGGCGCTACTAGCATCTATTCTAGTACTAATAATTATACCAATCACCACACTTCC  
AAACAGCGAACACAAAACCTTCAAACCCATATCACAATCCTGCTATGACTACTACTCACT

ACAATCCTGCTATTAACTGAGTAGCAACAAAACCAGTAGAATACCCATTCATCATCCTA  
GGACAATTAACCTCTCTGATCTACTTCTCCATTTTTATCATTATCCTACCTCTCACCGCC  
ACATTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTGCGCATGAGTAGGACTAGAGTTAAACACTCTGGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAGTACTTCTGACACAAGCCATAGCATCC  
TCAATACTCCTGTTTGGCTGCCACAACAATGCACTCCATACTGGACTATGAGAGATCAAG  
TCTATGTCAATACCTGCATCAACTATTATTGTAACCATGGCTCTATTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTCCGTATGGAAATAGGC  
TTAATTATCTTGACTTGACAAAAACTAGCACCCATAGCCCTTATCCTTTCATCAGAAGAA  
GCTCTCCACCAAAAAACACTCCTTATCTCAGCCACGCTCTCAATCATAATTGGGGGATGA  
GGAGGACTAAATCAAAACAACCTCCGAAAACTAATAGTCTTTTCATCTATCTCCCATATC  
GGATGAATATTAATAACAGCTCTAATCTCCCCTAAAGTAACCATTTATCGCCCTTACCATC  
TATATCCTATTGACAACCCCAATATTTCTATTAATACTCTCAAATTCATCAAAAATATT  
AAAGACATTGGCTCTGCCTGAAATGTATCTCCACATATTATATCAATTTCTATGCTAATC  
CTTATGTCACCTTCAGGAATACCACCATTAACAGGGTTTATGCCAAAATGAATTATCCTA  
AAGGAATTAACAAGCCACAACCTAATATCACTAGCTGCCATAGCAGCAATCTTATCAATC  
CTTAGCCTCTATTTTTACCTACATCTATCGTACGCCACAACCATAACAATCCCACCTAGC  
ACAATCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CaCAACCTAGAGGAGCCTGTCTATAATCgATGATCCACgAAGGACCTTACCACCCCTTTG  
CCAAACAACCTATATACCGCCGTCgAAAGTTCACCTTATGAAAaAAAAAAGTGAACACA  
ATAGCTCAACACTAACCGTCCGGTCAAGGTGTAGTTAATAGGATGGCCAGAGATGGGCT  
ACATTTCTACaAAGGAAAAACGAACGGCCAAATGAAGACTAGCCAGAAGGAGGATTTa  
GTAGTAAAAcAgGATCagAAAGCCTGCTTGAACACCCTGCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAAATAGCCTTTAGCTAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCCGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCCTATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAAACCCATTAACCTATTAAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTAACTTCCAAACGAGAAAAAACAACCCCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCTTATCAAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species F3

CytB

--AACTTTGGCTCACTATTAATAATATGCTTAGCAATTCAAATCCTTTCCGGACTATTC  
CTGGCCATGCACTACACAGCATACTCTAGCCTTCTCCTCAATTATCCATATTTCC  
CGAAACGTAAATGCAGGTTGACTTATCCAAAATCTACATGCCAACGGAGCCTCGCTATTC  
TTTATCTGCATATACATTACATTGCCCCGAGGATTATACTACGGGTCTACATATACAAA  
AACACCTGGTTTCATCGGAGTAACTATCCTGCTAGCAACAATACTAACCGCCTTCTTAGGG  
TATGTTCTACCATGAGGACAAAATCACTATGAGGGGCAACAGTAATTACCAACCTACTT

TCCGCCATTCCCTACATCGGAACCACACTAGTAACATGAATCTGAGGCGGATTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTCACATTCCTACTTTATACTACCATTCGTAATCATC  
GCCCCTCACAGCCATCCACATCCTGTTCTTACACGAACTGGATCAAACAACCCACTAGGG  
GTTAACTCTGACACAGACAAAATCCCCTTCCACCCATACTTCCACAATAAAAGACATTTTA  
GGCGTAGCACTAACAATTGCCACCCTACTAACCATAGTATTCTTCTCCCAAACCTACTA  
GGAGACCCAGACAACTTCTCAAAGCTAATCCCATATCCACCCCAATCCACATTAAGCCA  
GAGTGATATTCTGTTTGTCTTACGCCATCCTACGGTCTATCCCAAACAACTAGGAGGC  
GTAATGGCGCTACTAGCATCTATTCTAGTACTAATAATTATACCAATCACCACACTTCC  
AAACAGCGAACACAAAACCTTCAAACCCATATCACAAATCCTGCTATGACTACTACTACT  
ACAATCCTGCTATTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTCATCATCCTA  
GGACAATTAACCTCTGATCTACTTCTCCATTTTTATCATTATCCTACCTCTCACCGCC  
ACATTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAATTAACACTTTGGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAGTACTTCTGACACAAGCCATAGCATCC  
TCAATACTCCTGTTTGTCTGCCACAACAAATGCACTCCACACTGGACTATGGGAGATCAAG  
TCTATGTCAATACCTGCATCAACTATTATTGTAACATATGGCTCTATTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTCTCCAAGGAGTCCGTATGGAAATAGGC  
TTAATCATCTTGACTTGACAAAAACTAGCACCCATAGCCCTTATCCTTTTCATCAGAAGAA  
GTCCCTCCACAAAAAACACTCCTTATCTCAGCCACGCTCTCAATCATAATCGGGGGATGA  
GGAGGACTAAATCAAACACAACACTACGAAAACCTAATAGTCTTTTCATCTATCTCCCATATC  
GGATGAATACTAATAACAGCTCTAATCTCCCCTAAAGTAACCATTATCGCCCTTACCATC  
TATATTCTATTGACAACCCCAATATTTCTATTAATACTCTCAAATTCATCAAAAACTATT  
AAAGACATTGGCTCTGCTTGAAATGTATCTCCACATATTATATCAATTTCTATGCTAATC  
CTTATGTCACTTTCAGGAATACCACCATTAACAGGGTTTATGCCAAAATGAATTAATCCTA  
AAGGAATTAACAAGCCACAACCTAATATCACTAGCTGCCATAGCAGCAATCTTATCAATC  
CTTAGCCTCTATTTTACCTACACTTATCCTACGCCACAACCATAACAATCCCACCTAGC  
ACAATCACAAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGaCGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCCTTTG  
CCAAACAACCTATATACCGCCGTGAAAGTTACCTTATGAAAGAAAAAAGTGAACACA  
ATAGCTCAACACTAACACGTGAGGTCAAGGTGTAGTTAATAGGATGGCCAGAGATGGGCT  
ACATTTCTACAAaAGGAAAAACGAACGGCCAAATGAAAACCTAGCCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCCGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAAATTA  
TTTATAAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCTATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTAACCTATTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAACGAGAAAAACAAAACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCTTATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species H1

CytB

--AAACTTCGGCTCACTATTAATAATATGCTTAATAATCCAAATCCTTTCCGGACTATTC  
CTAGCCATACACTACACAGCAGATATCGCCCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGACTGATCCAAAACCTACATGCCAACGGAGCCTCTCTATTC  
TTTATTTGCATGTATATCCACATTGCCCGAGGATTATACTATGGATCCTACATATATAAAA  
AACACATGGTTCATCGGAGTAACTATCCTACTAGCAACCATACTAACTGCCTTCCTAGGA  
TATGTTTTTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCTACATCGGATCCACACTAGTAACATGGATCTGAGGTGGGTTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTACATTTCACTTCATACTACCATTTCATAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAATAACCCACTAGGA  
GTCAACTCCGCACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTTTA  
GGCGCCGCACTAAACAATCGCCACCCCTACTAACTATAGTTTTCTTTTTCCCAAACCTATTA  
GGAGACCCAGAAAACCTTTTCAAAGGCTAACCCCTATATCCACCCCAATCCATATCAAACCA  
GAATGGTACTTTCTATTTGCTTATGCCATTCTACGATCTATCCCAAACAACTAGGGGGT  
GTAATAGCTACTAGCATCTATTCTAGTACTGATAATCATGCCAATAACCCACACCTCC  
AAACAACGTACAAAACCTTTAAACCCATATCACAACCCCTACTATGACTACTACTACC  
ACCATCCTACTGCTAACTTGAGTAGCAACAAAACAGTAGAATAACCCATTTCATTATCCTA  
GGACAATTAACCTCCCTAATCTACT-----  
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ND2

ACCATCAGCATCAGCATCATTACAGGGACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTGCGCATGAGTAGGACTAGAATTAAACACTTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAACAGAAGCAACAACAAAATACTTCTTAAACACAAGCTATAGCATCC  
TCCATGCTTCTGTTGCTGCCACAACAAACGCCTCCACACCGGAGTGTGGGAGATCAAG  
TCTATGTCAACACCTGCATCAACTATCATTGTAACCTCAAGCCCTGCTGATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTCCGCATAGAGATAGGT  
TTAATCATTTTAACTTGACAAAAATTAGCACCCATAGCCCTTATCCTTTCATCAGAAGAA  
GTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAGTCGGAGGTTGA  
GGGGGCCATAATCAAAACACAGCTACGAAAATAATAGCCTTTTTCATCTATCTCCCATATC  
GGATGAATACTGATAACAGCCCTAATCTCCCCTAAAGTAACCATTATCGCCCTTATCATC  
TATATTCTATGACAACCCCGATATTTTTATCAATACTCTCAAACCCATCAAAAACCTATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATTTCTATGTTAATC  
CTTATGCTACTCCAGGAATACCACCCCTAACAGGGTTTATGCCAAAATGAATTATCCCT  
AAAGAACTAACAAAGCCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCCATC  
CTTAGCCCTTATTTTTACCTGCACTATCCTACGCCACAACCATGACAATCCCACCAAGC  
A-----

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCCTACCACCCCTTTG  
CCAAACAACCTATATACCGCCGTGAAAGTTTACCTTGTGAAAGAGAAAAAGTGAACGTA  
ATAGTTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAGGAAAAACGAACGGTCAAATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCa  
GTGAACCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAAATTA

TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCCGTTAAACCTATTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAAACGAGAAAAACAACACCCACCAAGACCTACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species H2

CytB

--AAACTTCGGCTCACTATTAATAATATGCTTAATAATCCAAATCCTTTCCGGACTATTC  
CTAGCCATACACTACACAGCAGATATCGCCCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGACTGATCCAAAACCTACATGCCAACGGAGCCTCTCTATTC  
TTTATTTGTCATGTATATCCACATTTGCCCGAGGATTATACTATGGATCCTACATATATAAA  
AACACATGGTTCATCGGAGTAACTATCCTACTAGCAACCATACTAACTGCCTTCCTAGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCCTACATCGGATCCACACTAGTAACATGGATCTGAGGTGGGTTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTACATTTCACTTCATACTACCATTTCATAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAATAACCCACTAGGA  
GTCAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTTTA  
GGCGCCGCACTAACAAATCGCCACCCCTACTAACTATAATTTTTCTTTTTCCCAAACCTATTA  
GGAGACCCAGAAAACCTTTCAAAGGCTAACCCCTATATCCACCCCAATCCATATCAAACCA  
GAATGGTACTTTCTATTTGCTTATGCCATTCTACGATCTATCCCAAACAACTAGGGGGT  
GTAATAGCACTACTAGCATCTATTCTAGTACTGATAATCATGCCAATAACCCACACCTCC  
AAACAACGTACAAAAACCTTTAAACCCATATCACAAACCCCTACTATGACTACTACTCACC  
ACCATCCTACTGCTAACTTGAGTAGCAACAAAACAGTAGAATACCCATTCATTATCCCTA  
GGACAATTAACCTCCCTAATCTACT-----  
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ND2

ACCATCAGCATCAGCATCATTACAGGGACTATAATCACAGCCTCGAGCCACCCTGATTTT  
TTTCGCATGAGTAGGACTAGAATTAACACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAACAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATGCTTCTGTTGCTGCCACAACAAACGCACTCCACACCCGGAGTGTGGGAGATCAAG  
TCTATGTCAACACCTGCATCAACTATCATTGTAACCTATGGCCCTGCTGATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTCCGCATAGAGATAGGT  
TTAATCATTTTAACTTGACAAAAATTAGCACCCATAGCCCTTATCCTTTTCATCAGAAGAA  
GTCCCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAGTCGGAGGTGA  
GGGGCCCTAAATCAAACACAGCTACGAAAACCTAATAGCCTTTTTTCATCTATCTCCCATATC  
GGATGAATACTGATAACAGCCCTAATCTCCCCTAAAGTAACCAATTATCGCCCTTATCATC  
TATATTCTATGACAACCCCGATATTTTTTATCAATACTCTCAAACCCATCAAAAACTATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATTTCTATGTTAATC  
CTTATGTCACTCCAGGAATACCACCCCTAACAGGGTTTATGCCAAAATGAATTATCCCT  
AAAGAACTAACAAAGCCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCCATC  
CTTAGCCTTTATTTTTACCCCTGCACTATCCTACGCCACAACCATGACAATCCCACCAAGC  
A-----

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTACCACCCCTTTG  
CCAAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACGTA  
ATAGTTCAACACTAACACGTCAAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAGGAAAAACGAACGGTCAAATGAAAACCAACCAGAAGGAGGATTTA

GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAgCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAACCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAgTAagcgTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAATTAA  
TTTATAAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCGTTAAACCTATTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAACGAGAAAAACAACACCCACCAAGACCTACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species H3

CytB

--AAACTTTGGCTCACTATTAATAATATGCTTAATAATCCAAATCCTTTCCGGACTATTC  
CTAGCCATACTACACAGCAGATATCACCCCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGACTGATCCAAAACCTACATGCCAACGGAGCCTCTCTATTC  
TTTATTTGCATGTATATCCACATTGCCCGAGGATTATACTATGGATCCTACATATATAAA  
AACACATGGTTCATCGGAGTGACTATCCTACTAGCAACCATACTAACTGCC'TTCC'TAGGA  
TATGTTCTACCATGAGGACAAAATACACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCTACATCGGATCCACACTAGTAACATGGATCTGAGGTGGATTCTCCATC  
AGCAACTCAACACTAACACGATTCTTTACATTTCACTTCATACTACCATTTCATAATCATC  
GCCCTCACGCCATCCACATCCTATTCTTACACGAAACCGGATCAATAACCCACTAGGA  
GTCAACTCCGACACAGACAAAATCCCTTCCACCCATACTTCACAATAAAAGACATTTTA  
GGCGCCGCACTAACCAATCGCCACCCTACTAACTATAGTATTCTTTTTCCCAAACCTATTA  
GGAGACCCAGAAAAC'TTTCAAAGGCTAACCCATATCCACCCCAATCCATATCAAACCA  
GAATGATACTTTCTATTTGCTTATGCCATTCTACGATCTATCCCAAACAACTAGGAGGT  
GTAATAGCACTACTAGCATCTATTCTAGTACTGATAATCATGCCAATAACCCACACTTCC  
AAACAACGTACAAAACCTTTAAACCCATATCACAAACCTACTATGACTACTACTCACC  
ACCATCCTACTGCTAACTTGAGTAGCAACAAAACAGTAGAATACCCATTTCATTATCCTA  
GGACAATTAACCTCCCTAATCTACT-----  
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ND2

ACCATCAGCATCAGCATCATTACAGGGACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAATTAAACACTTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAACAGAAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATGCTTCTGTTTGCTGCCACAACAAACGCACTCCACACCGGAGTGTGGGAGATCAAG  
TCTATGTCAACACCTGCATCAACTATCATTGTAACATATGGCCCTGCTGATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAGTCCGCATAGAGATAGGT  
TTAATCATTTAACTTGACAAAAATTAGCACCCATAGCCCTTATCCTTTTCATCAGAAGAA  
GTCCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAGTCGGAGGTTGA  
GGGGGCC'TAAATCAAACACAGCTACGAAAAC'TAATAGCCTTTTTCATCTATCTCCCATATC  
GGATGAATACTGATAACAGCCCTAATCTCCCCTAAAGTAACCATTATCGCCCTTATCATC  
TATATTTCTATGACAACCCCGATATTTTATCAATACTCTCAAACCCATCAAAAAC'TATT  
AAAGACATCGGATCTGCTTGAATGTATCTCCACACTTATATCAATTTCTATGTTAATC  
CTTATGTCACTCCAGGAATACCACCTTAAACGGGTTTATGCCAAAATGAATTATCCCT  
AAAGAACTAACAAAGCCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCCATC  
CTTAGCCTTTATTTTACCTGCACTATCCTACGCCACAACCATGACAATCCCAACCAAGC

A-----

12S

GGCCCCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACTTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCCACCACCTTTG  
CCAAACAACCTATATACCGCCGTCGAAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGTTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAACGGTCAAATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAACCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCC  
GTGAAGCTTAAAAACCCCATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAACGAGAAAAACAACACCCACCAAGACCTACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species B1

CytB

--AAACTTCGGCTCATTACTAATAATGTGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATAACAAG  
AACACATGATTCATCGGAGTACTATCCTACTAGCAACAATACTAACCGCTTTCCTTGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCGTCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGATTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTCGTAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTACACAAAAAGACATTTCTA  
GGTATCGTACTTACAATCATCACCTTATTACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTCCTA  
GGTCAACTAATCTACTAATCTATTTTTCCATTTTCAATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATCACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
CGAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC

CTAATCATCTTAACATGACAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACATCAAAAACTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACATAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGtGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATTTATCTTATGCTACAACCATTACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTCACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACTAACCGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAAATaGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAAGCCTATTAATAGGTATTTTGTAGTTGGGGCACTTTG  
GAAAACACTTAACTTCCAAAACAAGGAAAAATACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B2

CytB

--AAACTTCGGCTCATTACTAATAATGTGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATT  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTTCCCTTGG  
TATGTTTTTACCATGAGGACAAAATACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCGTCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGTTCCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACCTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACTTTCAAACCCATATCACAAGTGTACTACTATGACTTCTACTACC  
ACCATTTTACTACTAACATGACTCGCAACAAAACAGTAGAACCACCCCTTTATCCTCCTA  
GGTCAACTAACCTCACTAATCTATTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA



ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCCCCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTCATCAGAAGAA  
GTTCTACACCAAAAAACTACTTATTTTCGGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCTAAATCAAACACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAaGAACCTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGTCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGACACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCTTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B3

CytB

--AAACTTCGGCTCATTACTAATAATGTGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATT  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATAACA  
AACACATGATTCATCGGAGTGACTATCTACTAGCAACAATACTAACCGCTTTCCCTTGA  
TATGTTTTTACCATGAGGACAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACT  
TCCGCCGTCCCCTATATTGGAAACCACACTAGTAACGTGAATTTGAGGGGGATTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTCGTAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA

ATCAACTCTGACACGGACAAAATTTCTTTCCACCATACTTCACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACCTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTTCAAAAAGCGAACCCAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGCAACAAAACCAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCAAGCCACCCTGATTT  
TTTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTAGTACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCCCACTTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACCAAAAAACTACTTATTTTCGCCACACTATCAATTTTAAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAATATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAaGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGTCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTTATAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGACACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTA<sub>9</sub>CGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTTAACTTCAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B4

CytB

--AAACTTCGGCTCATTACTAATAATGTGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATAACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTCCTTGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCGTCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGTTCCTCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAAGTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAATTTCAAAGCGAACCCAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAAACAAAACCTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTCCATTTTCATTATCATCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTATCAGAAGAA  
GTTCTACACAAAAAACTACTTATTTTCGGCCACACTATCAATTTTAAATCGGGGGTGA  
GGAGGCCATAATCAAACACAACACTACGAAAGTTAATAGCCTTTTTTATCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCTAAAGTAAGTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTGAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAAACGGTCAAATGAAAACCTAACGAGAAGGAGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGACACTTTCAACGGCCGCTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAACCTTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC

AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B5

CytB

--AAACTTCGGCTCATTACTAATAATGTGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATT  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTCCCTTGGA  
TATGTTTTTACCATGAGGACAAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCCTCCCTATATTGGAACCACTAGTAACGTGAATTTGAGGGGGTTCCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATTCATATTTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGCACCGACAAAATTTCTTTCCACCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAATTTTCAAAGCGAACCATAATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAATTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATTATCACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAAGCGaCAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTTATTTGCTGCTACAACAAACGCCTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGGCCACACTATCAATTTTAAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAATATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACATACT  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAGAAAAACGAACGGTCAAATGAAAACATAACAGAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGACACTTTCAACGGCCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species J1

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTTAATAATCCAAATCCTCTCCGGACTATTC  
CTAGCCATGCACTACACAGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAGTGCAGGCTGACTGATCCAAAACCTACATGCCAACGGAGCCTCTCTATTC  
TTTATTTGCATGTATATCCACATTGCCCGAGGATTATACTATGGATCCTACATATATAAA  
AACACATGGTTCATCGGAGTAACTATCCTACTAGCAACCATACTAACTGCCTTCCTAGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCCACATCGGATCCACACTAGTAACATGGATCTGAGGTGGGTTCTCTATC  
AGCAACTCAACATTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTCAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTTACAATAAAAAGACATTTTA  
GGCGTCACTAAACAATTACCACCCAATAACCATAGTATTCTTTTTCCCTAACCTATTA  
GGTACCAGAAAACCTTTCAAAGGCTAACCCCATATCCACCCAGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTACGATCCATCCCAAACAACCTAGGAGGT  
GTAATAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACTTCA  
AAACAACGGACAAAAACCTTCAAACCCATATCAAAAATCCTGCTATGATTACTACTCACT  
ACCGTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAGTACCCATTTATTATCCTA  
GGACAATTAATCTCTAATCTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGCC  
ACATTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAATACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTTT  
TTCGCATGAGTAGGGCTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCCAGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAACGCACTTCATACTGGACTGTGAGAAATCAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACCATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTGCTACAAGGGATTTCGCATGGAAATAGGT  
CTAATTATTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCTCCACAAAAAACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGCCATAAATCAACACAACCTACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATACTAATAACAGCCCTAATCTCTCTAAAACAACCATCATTGCCCTTATCATC  
TATATTCTATTGACAACCCCAATATTTTTATCAATACTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATGTCAATTTCTATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAAGTGAATTATCCTA  
AAAGAACTAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTATTTTACCTACACTTATCCTACGCCACAACCATGACAATCCCACC-----  
-----

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCGAACAACCTATATACCGCCGTCGAAAGTTACCTTATGAAAGAGAAAAAGTGAACATA  
ATAGCTTAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAAAGGTCAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACG-----  
-----

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTAAGGTAATGCCTGCCCa  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGgTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCCT  
GTGAAGCTTTAAAAACCCATTAACCTGTCTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAATTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species J2

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTTAATAATCCAAATCCTCTCCGGACTATTC  
CTAGCCATGCACTACAGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAGTGCAGGCTGACTGATCCAAAACCTACATGCCAACGGAGCCTCCCTATTC  
TTTATTTGCATGTATATCCACATTGCCCCGAGGATTATACTACGGATCCTACATATATAAA  
AACACATGATTCATCGGAGTAACTATCCTACTAGCAACCATACTAACTGCC'TTCC'TAGGA  
TATGTTTTACCATGAGGACAAAATACACTATGAGGGGCAACAGTAATCACTAACCTACTT  
TCTGCCATCCCTACATCGGAACCACACTAGTAACATGGATCTGAGGTGGATTCTCTATC  
AGCAACTCAACATTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTAAACTCCGCACAGACAAAATCCCCCTCCACCCATACTTTACAATAAAAGACATTTTA  
GGGTCACACTAAACAATTACCACCCAACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
GGTGACCCAGAAAAC'TTTCAAAGGCTAACCCCATATCCACCCAGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTACGATCCATCCCAAACAACCTAGGAGGT  
GTAATAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACTTCA  
AAACAACGGACAAAACCTTCAAACCCATATCACAATCCTGCTATGATTACTACTCACT  
ACCGTCCTATTACTAACCTGAGTAGCAACAAAACAGTAGAGTACCCATTTATTATCCTA  
GGACAATTAATCTCTCTAATCTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGCC  
ACATTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAATACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTT  
TTTCGCATGAGTAGGGCTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAACGCCTTCATACTGGACTGTGAGAAATCAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACCATGGCCCTGCTGATAAAAAATAGG  
GCGGCACCATTCTACTTCTGAGTGCCAGAAGTGCTACAAGGGATTTCGCATGGAAATAGGT  
CTAATTATTTAACTTGACAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGGCC'TAAATCAAAACAACCTACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT

GGATGAATACTAATAACAGCCCTAATCTCTCCTAAAACAACCATCATTGCCCTTATCATC  
TATATTCTATTGACAACCCCAATATTTTTATCAATACTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATGTCAATTTCTATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAAGTGAATTATCCTA  
AAAGAACTAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTATTTTTACCTACACTTATCCTACGCCACAACCATGACAATCCCACC-----  
-----

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCGAACAACCTATATACCGCCGTCGAAAAGTTACCTTATGAAAAGAGAAAAAGTGAACATA  
ATAGCTTAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAAAAGGTGAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACG-----  
-----

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTA AACCTGCTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTTGTTCAACGATTAACAGT

Species C1

CytB

--AAACTTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGCTGACTAATCCAAAACCTGCACGCCAACGGAGCCTCTCTATTCT  
TTTATCTGCATGTATATCCACATTGCGCGAGGATTATACTACGGATCCTACATATAACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAACAACAATACTAACCGCTTTCCCTTGGA  
TATGCTTTACCATGAGGACAAATATCACTATGAGGGGCCACAGTAATTACCAACCTACTT  
TCCGCCATCCCTATATTGGAACCACATTAGTAACATGAATTTGAGGAGGATTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTCATAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAGACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTG  
GGCATCGTACTTACAATCATCACCTTATTAACATAATCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACGTCT  
AAACAACGAACAAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATCCTACTACTAATGACTCGAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCTACCCCTCACCCT  
ATACTAGAAAATAAAATATATGACCCCTGCCTTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCAAGCCACCCTGATTT  
TTTCGCATGAATGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCACTAGAAGCAACAACAAAATATTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCACACAGGGCTGTGAGAAATCAA  
TCTATATCAATGCCTGCATCAACTATTATTGTAAGTCTAGCTCTGCTAATAAAAAATAGGA  
GCAGCACCATTCTACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTCATCAGAAGAA  
ATCCTACACCAAAAAACTACTTATTTTCGGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCATAATCAAACGCAACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACGATT  
AAAGATATTGGATCTACCTGAAACGTATCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGATTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTCTACCTACATCTATCTTATGCTACAACCATAACAATCCCACCAAGC  
ACCATCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGCAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACcGCCGTGAAAGTTACCTTGTGAGAGAAAAAAGTGAACAAA  
ATAGTTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGAAAAACGAACGGTCAAAAtGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCGTCACCCCATCAACACACCCAACAATAAATTAATAATATGCCAGGGTTAAAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGAAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species C2

CytB

--AAACTTCGGCTCATTTGCTAATAATATGCCTAATAATCCAGATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGCTGACTAATCCAAAACCTGCACGCCAACGGAGCCTCTCTATT  
TTTATCTGCATGTATATCCATATTGCGCGAGGATTATACTACGGATCCTACATATACAAG  
AACACATGATTCATCGGGGTGACTATCCTACTAGCAACAATACTAACCGCTTTTCCTTGGA  
TATGTCCTTACCATGAGGACAAAATACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCTATGTTGGAACACATTGGTAACATGAATTTGAGGTGGGTTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTACATTTCACTTTTTACTACCATTTCATAATTATT  
GCTCTACGGCCATTATATTCTATTCTTACACGAAACCGGATCAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCATACTTACACAAAAAGACATTCTA  
GGCATCGTACTTACAATCATCACCTTATTAACATAATCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCAATATCTACCCAGTCCACATCAAACCA



GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTGGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACGTCT  
AAACAACGAACAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATCCTACTACTAACATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCCT  
ATACTAGAAAAATAAATTTATATGACCCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCAAGCCACCCTGATTT  
TTTCGCATGAATGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATATTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCACACAGGGCTGTGAGAAATCAAA  
TCTATATCAATGCCTGCATCAACTATTTGTAAGTCTAGCTCTGCTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
ATCCTACACCAAAAAACACTACTTATTTTCGGCCACACTATCAATTTAATCGGGGGTTGA  
GGAGGCCTAAATCAAACGCAACTACGAAAGTTAATAGCCTTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAAGTATTGCTCTCCTTATT  
TATATTCTATTAACGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACGATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGATTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTTTCAATC  
CTTAGCCTTTATTTTACCTACATCTATCTTATGCTACAACCATAACAATCCCACCAAGC  
ACCATCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGCAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACAAA  
ATAGTTCAACACTAACACGTGAGGTCAAGGTGTAGTTTATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACTAACAGAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCG  
CCCCTCACCCCATCAACACACCCCAACAATAAATTAATAATATGCCAGGGTTAAAA ---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACATA  
TTTATAAAAACCTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCCATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species C3

CytB

--AAACCTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGCTGACTAATCCAAAACCTGCATGCCAACGGAGCCTCTCTATTCT

TTTATCTGCATGTATATCCACATTGCGCGAGGATTATACTACGGATCCTACATATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCCTTTCCCTTGGGA  
TATGTTTTTACCATGAGGACAAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTT  
TCCGCCATCCCCTATATTGGAACCACATTAGTAACATGAGTTTGGGGGGTTCCTATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCATAATTATT  
GCTCTCACGGCCATTCATATTTCTATTCTTACACGAGACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCATACTTCACACAAAAGACATTCTA  
GGCATCGTACTTACAATCATCACCTTATTAACCATAATCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAATTTTCAAAGCGAACCCAATATCTACCCCAATCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAATAAATTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAATTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCGCC  
ACGATCCTACTACTAATGACTCGCAACAAAACAGTAGAACACCCCTTCATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGAACTATAATTACAGCCTGAAGCCACCCTGGTTT  
TTGCGATGACTGGGACTAGAGTTAAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CACCACCCACGGGCAATAGAAGCAACAACAAAATATTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCATACTGGACTGTGGGAAATCAA  
TCTATATCAATGCCTGCATCAACTATTATTGTAACTCTAGCCCTGCTGATAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGGCCATAATCAAAACAACACTACGAAAACCTGATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATCCTATTAGCGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTaTCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCCCTCTCAGGAATGCCACCCCTAACAGGATTTATGCCAAAATGAATTATTCTA  
AAAGAACTAACAAACCACAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTACCTACATCTATCTTATGCTACAACCATAACAATCCCACCAAGC  
ACCATCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGATTTGACGGTGTCCACACA  
CACAACCTAAAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCCCCCTTTTG  
CCCAACAACCTATATACCGCCGTCAAAAGTTACCTCGTGAGAAAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAAGGTGATTTAAGGGGTGGCCAGAGATGGGCT  
ACTTTTCTATAAAAGGAAAAACGAAGGGTAAAATGAAAACCTAACAAAAGGAGGATTTA  
TTATTAACACAGGATCAAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCGTACCCCCATCAACACACCCAACAATAAATTAATAATATGCCAGGGTTAAAA---

16S

CGCCTGTTTATCTCAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCACTTTG  
GAAAACCACTTAACTTCAAACAAGAAAAACACCACCCCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species C4

CytB

--AAACTTTCGGCTCATTACTAATAACATGTCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACACTACACAGCAGACATCTCCCTAGCCTTCGCCTCAATTATCCACATCTCC  
CGAAACGTAAACGCAGGTTGACTAATCCAAAATCTGCACGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATGTATATCCACATTGCGCGAGGATTATACTACGGATCCTACATATACAAG  
AACACATGATTTCATCGGGGTGACTATCCTACTAGCAACAATACTAACCCTTTCCCTTGGGA  
TATGTTTTTACCATGAGGACAAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCCATATATTGGAACCACATTAGTAACATGAATTTGAGGGGGATTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTCATAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAAGACATTTTA  
GGCATCATACTTACAATCATCACCTTATTACTATAAATCTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAATTTTCAAAGCGAACCCAAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCTTACGCTATCCTGCGATCAATCCCTAACAAAATTAGGGGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACGTCT  
AAACAACGAACAAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATCCTACTACTAACATGACTCGAACAAAAACCAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGAACTATAATTACAGCCTCGAGCCACCCTGGTTTT  
TTCCGCATGACTGGGACTAGAGTTAAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CACCACCCACGGGCAATAGAAGCAACAACAAAATATTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCATACTGGACTGTGGGAAATCAAAA  
TCTATATCAATGCCTGCATCAACTATTATTGTAACTCTAGCCCTGCTGATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTTCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGCCCTAAATCAAACACAACACTACGAAAACCTGATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGGTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATCCTATTAGCGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCCCTCTCAGGAATGCCACCCCTAACAGGATTTATGCCAAAATGGATTATTCTA  
AAAGAACTAACAAACCACAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCAAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTGAAAGTTTACCTTGTGAAAGAAAAAAGTGAACAAA  
ATAGCTCAACACTAACACGTCAAGGTGATTTAAGGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAAGGGTAAAAAGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCC  
CCGTCACCCCATCAACACACCCCAACAATAAATTAATAATATGCCAGGGTTAAAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCCATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAACAAGAAAAAACACCACCACCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species 11

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTAAATAATCCAAATCCTCTCCGGACTATTC  
CTAGCCATGCCTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAGTGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCCTCCCTGTTT  
TTCATCTGCATGTATATTCACATTGCCCGAGGATTATACTACGGATCCTACATATATAAAA  
AACACATGATTCATCGGGGTAACCTATCCTACTAGCAACCATATTAACCTGCCTTCCTAGGA  
TATGCTTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATCTACTAACCTACTT  
TCTGCCATCCCTTATGTTGGAACACACTAGTAACATGAATTTGAGGCGGATTCCTCTATC  
AGCAATCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTAAACTCCAACACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAGACATTTTA  
GGGTCACACTAAACAATTACCACCCAACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAACCTTTTCAAAGGCTAACCCCATATCCACCCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTACGATCCATCCCAAACAACCTAGGAGGT  
GTAGTAGCATACTAGCATCTATTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGGACAAAACCTTCAAACCCATACAAAATCCTGTATGATTACTACTACT  
ACCGTCTGTCTACTAACCTGAGTAGCAACAAAACAGTAGAATAACCCATTTATTATCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGCA  
ACATTAGAAAATAAAAATCATATGATCCTGCCTTAATAGCTTAACACAAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTTT  
TTTCGCATGACTAGGGCTAGAATTAAATACTTTAGCCGTGATCCCAATAATAGCAAACCA  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAACGCCTTCATACTGGACTGTGGGAAATCAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACACTAGGCCCTGCTGATAAAAAATAGG  
GCGGCACCAATTCCTTCTGAGTGCCAGAAGTACTACAAGGGGTTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGGCCATAATCAAAACAACTACGAAAACCTGATAGCCTTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATGACAACCCCAATATTTTTATCAATGCTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTGCCGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAATGAATTATCCTA  
AAAGAACTAACAAACCAACCTGATACCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTAAGCCTTTATTTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCGAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG

CCGAACAACCTATATACCGCCGTCGAAAAGTTCACCTTATGAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACACTAACACGTCAGGTGAGGGTGTATTTAAGGGGGGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAAAGGTGAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTACCCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA ---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCTAATAGCCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species I2

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTAATAATCCAAATCCTTTCCGGACTGTTT  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAATGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCTCCCTGTTC  
TTCATCTGCATGTATATTCACATTGCCCGAGGATTATACTACGGATCCTACATATATAAA  
AACACATGATTCATCGGGTAACTATCCTACTAGCAACCATATTAAGTGCCTTCCCTAGGA  
TATGTCTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATCACTAACCTATT  
TCTGCCATCCCTTATGTTGGAACCACACTAGTAACATGAATTTGAGGCGGATTCTCTATC  
AGCAATTCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAGACATTTTA  
GGCGTCACACTAACAAATTACCACCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAATTTCAAAGGCCAACCCCATATCCACCCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTTCGATCCATCCCAAACAACCTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGAACAAAAACCTTCAAACCCATATCAAAAATCCTGCTATGATTACTACTCACT  
ACCGTCTGCTACTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTTATTATCCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGG  
ACATTAGAAAATAAATCATATGATCCTGCCTTAATAGCTTAACACAAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAATGGGACTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAAACGCACTTCATACTGGACTGTGGGAAATCAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACTATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAAATCGGAGGTTGA  
GGGGGCTTAAATCAAAACAACACTACGAAAACCTGATAGCCTTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCTATTGACAACCCCAATATTTTTATCAATGCTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC

CCTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTATTTTACCTACACCTATCTACGCCACAACCTATGACAATCCCACCAAGC  
ACCATAACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCTAACAACTTATATACCGCCGTCGAAAGTTTACCTTATGAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTTACAAAAGGAAAAACGAAAGGTGAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCGTCACCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA---

16S

CGCCTGTTTTATCCAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTTAAAAACCCATTAAACCTGTTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species I3

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTAAATAATCCAAATCCTTTCCGGACTGTTT  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAATGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCTCCCTGTTT  
TTCATCTGCATGTATATTCACATTGCCCGAGGATTATACTACGGATCCTACATATATAAA  
AACACATGATTCATCGGGTAACTATCCTACTAGCAACCATATTAACTGCCTTCCTAGGA  
TATGTCCTTACCATGAGGACAAAATACACTATGAGGGGCAACAGTAATCACTAACCTACTT  
TCTGCCATCCCTTATGTTGGAACCACTAGTAACATGAATTTGAGGCGGATTCCTCTATC  
AGCAATTCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTTAACTCCGCACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAGACATTTTA  
GGCGTCACACTAACCAATTACCACCCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAACTTTTCAAAGGCCAACCCCATATCCACCCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTTCGATCCATCCCAAACAACTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGAACAAAACCTTCAAACCCATATCACAATCCTGCTATGATTACTACTCACT  
ACCGTCCTGCTACTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTTATTATCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACC  
ACATTAGAAAATAAAATCATATGATCCTGCCTTAATAGCTTAACACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGAACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAATGGGACTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC

TCCATACTTCTATTTGCTGCCACAACAAACGCACTTCATACTGGACTGTGGGAAATCAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACATATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGCCTAAATCAAACACAACACTACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATTGACAACCCCAATATTTTTATCAATGCTCTCAAACCTCATCAAAAACTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CCTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTATTTTTACCTACACCTATCTACGCCACAACCTATGACAATCCCACCAAGC  
ACCATAACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCTAACCAACCTATATACCGCCGTCGAAAAGTTCACCTTATGAAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAAAAGGTGAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAGTAAATTAATAATATGCCAGGGTTATAA ---

16S

CGCCTGTTTTATCAAAAAATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCCATTA AACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCAACGATTAACAGT

Species I4

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTAATAATCCAAATCCTTTCCGGACTGTTT  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAATGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCTCCCTGTTT  
TTCATCTGCATGTATATTACATTTGCCCGAGGATTATACTACGGATCCTACATATATAAA  
AACACATGATTCATCGGGTAACTATCCTACTAGCAACCATATTA ACTGCCTTCCCTAGGA  
TATGCTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATCACTAACCTACTT  
TCTGCCATCCCTTATGTTGGAACCACTAGTAACATGAATTTGAGGCGGATTCTCTATC  
AGCAATTCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAAGACATTTTA  
GGCGTCACTAACAATTAACACCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAACCTTTCAAAGGCCAACCCCATATCCACCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTTCGATCCATCCCAAACAACCTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGAACAAAAACCTTCAAACCCATATCAAAATCCTGCTATGATTACTACTCACT

ACCGTCCTGCTACTAACCTGAGTAGCAACAAAACCAGTAGAATACCCATTTATTATCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGGC  
ACATTAGAAAATAAAAATCATATGATCCTGCCTTAATAGCTTAACACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAATGGGACTAGAATTTAAATACTTTAGCCGTGATCCCAATAATAGCAAACCA  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTGCTGCCACAACAAACGCCTTCATACTGGACTGTGGGAAATCAA  
TCCATATCAATACCCGCATCAACTATCATTGTAAGTATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTTCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGGCTTAAATCAAAACAACACTACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATTGACAACCCCAATATTTTATCAATGCTCTCAAACCTCATCAAAAATATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAATGAATTATCCTA  
AAAGAATAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCCATCCTATCAATC  
CTCAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCTATGACAATCCCACCAAGC  
ACCATAACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCTAACACCTATATACCGCCGTCAAAAGTTACCTTATGAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACACTAACACGTCAGGTCAAGGTGTATTTAAGGGGGGGCCAGAGATGGGCT  
ACTTTTCTACAAAAGGAAAAACGAAGGTTCAAATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCACCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA---

16S

CGCCTGTTTATCAAAAAATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAACCCATTAACCTGTAAATGGGTATTTTAGTTGGGGCACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species I5

CytB

--AACTTCGGCTCATTACTAATAATATGTTTAAATAATCCAAATCCTTTCCGGACTGTTTC  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAAATGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCTCCCTGTTTC  
TTCATCTGCATGTATATTACATTGCCCGAGGATTATACTACGGATCCTACATATATAAAA  
AACACATGATTCATCGGGGTAACCTATCCTACTAGCAACCATATTAACCTGCC'TTCTTAGGA  
TATGCTTTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATCACTAACCTACTT



TCTGCCATCCCTTATGTTGGAACCACACTAGTAACATGAATTTGAGGCGGATTCTCTATC  
AGCAATTCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCC TTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAAGACATTTTA  
GGCGTCACACTAACAAATTACCACCCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAAC TTTCAAAGGCCAACCCCATATCCACCCCGGTCCACATTA AACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTTCGATCCATCCCAAACAAACTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGAACAAAAACCTTCAAACCCATATCACAATCCTGCTATGATTACTACTACT  
ACCGTCTGCTACTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTTATTATCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACC GCG  
ACATTAGAAAATAAAATCATATGATCCTGCCTTAATAGCTTAACACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCAAGCCACCCTGATTT  
TTCGCATGAATGGGACTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAAACGCACTTCATACTGGACTGTGGGAAATCAAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACTATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGCCCTAAATCAAACACAAC TACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATTGACAACCCCAATATTTTTTATCAATGCTCTCAAACCTCATCAAAAACTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACCAAAATGAATTTATCCTA  
AAAGAACTAACAAACCACAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTTATTTTACCTACACCTATCCTACGCCACAAC TATGACAATCCCACCAAGC  
ACCATAACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACCTCAAAGGACTTGACGGTGTCC CACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCTAACAACTTATATACCGCCGTCAAAAAGTTACCTTATGAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACTAACACGTCAGGTCAAGGTGATTTAAGGGGGGGCCAGAGATGGGCT  
ACTTTTCTACAAAAGGAAAAACGAAGGGTCAAATGAAAACCAACCAGAAGGAGGATTTA  
TTATTTAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA ---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAAACGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTTAAAAACCCCATTA AACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACCCACCAAGCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGACGGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species I6

CytB

--AAACTTCGGCTCATTACTAATAATATGTTTAAATAATCCAAATCCTTTCCGGACTGTTCC  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAATGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCTCCCTGTTT  
TTCATCTGCATGTATATTCACATTGCCCGAGGATTATACTACGGATCCTACATATATAAAA  
AACACATGATTCATCGGGGTAACCTATCTACTAGCAACCATATTAACCTGCCTTCCTAGGA  
TATGCTTACCATGAGGACAAAATACACTATGAGGGGCAACAGTAATCACTAACCTACTT  
TCTGCCATCCCTTATGTTGGAACCACACTAGTAACATGAATTTGAGGCGGATTCCTCTATC  
AGCAATCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTTAACTCCGCACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAGACATTTTA  
GGGTCACACTAAACAATTACCACCCCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAACCTTTTCAAAGGCCAACCCCATATCCACCCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTTCGATCCATCCCAAACAACTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGAACAAAACCTTCAAACCCATATCAAAATCCTGTATGATTACTACTACT  
ACCGTCTGCTACTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTTATTATCCTA  
GGACAATTAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGCG  
ACATTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAACACAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTT  
TTGCGATGAATGGGACTAGAATTAATAACCTTAGCCGTGATCCCAATAATAGCAAAACCA  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAAACGCCTTCATACTGGACTGTGGGAAATCAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACCTAGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTTTCGCATGGAAATAGGT  
TTAATTGTCTTAACTTGACAAAAATTAGCACCCATAGCTCTTATCCTTTTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGGGGCCATAATCAAAACAACTACGAAAACCTGATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATGACAACCCCAATATTTTTATCAATGCTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTGCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CTTATGTCCCTCTCAGGGATACCGCCTTTAACAGGGTTTATACAAAATGAATTATCCTA  
AAAGAACTAACAAACCAACCTGATATCACTAGCCGTAATAGCAGCAATCCTATCAATC  
CTCAGCCTTTATTTTTACCTACACCTATCCTACGCCACAACCTATGACAATCCCACCAAGC  
ACCATAACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAGCCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTGG  
CCTAACAACTATATACCGCCGTCAAAGTTTACCTTATGAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACTAACACGTCAGGTCAGGGTGTATTTAAGGGGGGGCCAGAGATGGGCT  
ACTTTTCTTACAAAAGGAAAAACGAAGGGTCAAATGAAAACCAACCAGAAGGAGGATTTA  
TTATTAACAAACAGGATCAGAACGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA

TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTTAAAAACCCCATTA AACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGACGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species C5

CytB

--AAACCTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGCTGACTAATCCAAAACCTGCATGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATGTATATCCACATTGCGCGAGGATTATACTACGGATCCTACATATAACAAG  
AACACATGATTCATCGGAGTACTATCCTACTAGCAACAATACTAACCGCTTTCCTTGGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTT  
TCCGCCATCCCCATATTGGAACCACATTAGTAACATGAGTTTGAGGGGGTTCCTCTATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTCCATAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAGACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTA  
GGCATCGTACTTACAATCATCACCTTATTAACCATAATCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGCGAACCCAAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAACAATTATACCAATAACCCACACGTCT  
AAACAACGAACAAAAACCTTTCAAACCCATATCACAAGTGCTACTATGACTCCTACTCACC  
ACCATCCTACTACTAATGACTCGAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTCATTATCATCTACCCCTCACCCT  
ATACTAGAAAATAAAATATATGACCCCTGCCTTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATTACAGCCTCAAGCCACCACTGATTT  
TTTCGCATGAATGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATATTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCACACAGGGCTGTGAGAAATCAAA  
TCTATATCAATGCCTGCAGCAACTATTATTGTAACTCTAGCTCTGCTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
ATTCTACACAAAAAACTACTTATTTTCGGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCTAAATCAAACGCAACTACGAAAGTTAATAGCCTTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAAGTAACCTGTTATTGCTCTCCTTATT  
TATATTCTATTAACGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACGATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCACTCTCGGGTATGCCACCCCTAACAGGATTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATCTATCTTATGCTACAACCATAACAATCCCACCAAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAAAGGAGCCTGTCTTATAATCGATGATCCACGCAGGACCTCCCCCTTTTTG  
CCCAACAACCTATATACCGCCGTCAAAAAGTTACCTTGTGAAAAAAAAAAGTGAACAAA  
ATAGCTCAACACTAACACGT CAGGT CAGGGTGTATTTAAGGGGGGGCCAGAGATGGGCT  
ACTTTTTCTATAAAAAGGAAAAACAACCGGTCAAATGAAAACCTAACCAAAAGGAGGATTTA

TTATTTAAAACAGGATCAAAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAGCACACCCAACAATAAATTAATAATATGCCAGGGTTAAAA---

16S

CGCCTGTTTTATCAAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species C6

CytB

--AAACCTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACTACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGCTGACTAATCCAAAACCTGCATGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATGTATATCCACATTGCGCGAGGATTATACTACGGATCCTACATATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTCCCTTGGA  
TATGTTTTTACCATGAGGACAAAATACTATGAGGAGCCACAGTAATTACCAACCTACTT  
TCCGCCATCCCTATATTTGGAACCACATTAGTAACATGAGTTTGGGGGGTTCCTCCATC  
AGCAACTCAACACTAACACGATTCTTACATTTTACTTTATACTACCATTTCGTAATTAT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAGACCCGGATCAACAACCCACTAGGA  
GTCAACTCTGACACGGACAAAATTTCTTTCCACCATACTTCACACAAAAAGACATTCTA  
GGCATCGTACTTACAATCATCACCTTATTAACCATAATCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCAAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAACAATTATACCAATAACCCACACGTCT  
AAACAACGAACAAAACCTTTCAAACCCATATCACAAGTGCTACTATGACTCCTACTCACC  
ACCATCCTACTACTAATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAACCTCACTAATCTATTTTTCCATTTTATTATCATCCTACCCCTCACCCT  
ATACTAGAAAATAAAATATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATTACAGCCTCAAGCCACCCTGATTT  
TTTCGCATGAATGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATGGCATCC  
TCTATACTTTTTATTTGCTGCTACAACAAACGCACTTCACACAGGGCTGTGAGAAATCAAA  
TCTATATCAATGCCTGCAGCAACTATTATTGTAACCTCTAGCTCTGCTAATAAAAAATAGGA  
GCAGCACCATTTACTTCTGAGTGCCAGAAGTGCTACAAGGAGTCCGCATAGAAATGGGC  
CTAATCATCTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTATCAGAAGAA  
ATTCTACACCAAAAAACACTACTTATCTCGGCCACACTATCAATTTTAAATCGGGGGTTGA  
GGAGGCCATAATCAAACGCAACTACGAAAGTTAATAGCCTTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACGACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACGATT  
AAAGATATCGGATCTACCTGAAACGATCTCCACACATTATATCGATCTCTATACTGATC  
CTTATATCACTCTCGGGTATGCCACCCCTAACAGGATTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCAACCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTTACCTACATCTATCTTATGCTACAACCATAACAATCCCACCAAGC

ACCACTACAAT

12S

GGCCCCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGCAGGACCTCACCACCCTTTG  
CCAAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAGAGAAAAAAGTGAACAAA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTTATAAAAAGAAAAACGAACGGTCAAATGAAAACTAACAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAGCACACCCAACAATAAATTAATAATATGCCAGGGTTAAAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAAACGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAGGAAAAACCCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species G3

CytB

--AAACTTTGGCTCATTATTAATAATATGCTTAGCAATCCAGATCCTTTCCGGACTATT  
CTAGCCATACTACACAGCAGACATCACCTAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAATGCGGGTTGACTTATCCAAAATCAGCATGCCAACGGGGCCTCCCTATTC  
TTCATCTGCATGTACATTCACATTTGCCCGAGGACTATATTACGGGTCTACATATATAAA  
AACACATGATTTATTGGGGTAACCATCTACTAGCAACCATACTAACTGCCTTCCCTAGGG  
TATGTTCTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCTGCCATTCCTACATTTGGAACCACACTAGTAACATGAATCTGAGGCGGATTCTCCATC  
AGCAACTCAACACTAACACGATTCTTTCACATTTCACTTTATACTACCATTTCGTAATTATC  
GCCCTCACAGCTATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCCACAATAAAAAGACATTTCTA  
GGAGTCGTAATAAATTTGTCACCCCTACTAGTCATGGTATTCTTTTTCCCAAACCTGTTA  
GGAGACCCAGAAAACCTTCTCAAAGGCCAACCCCATATCCACCCCAATCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAATTAGGGGGC  
GTAATAGCACTACTAGCATCTATTTTAGTACTAATAATCATTCCAATAACCCACACCTCC  
AAACAACGAACAAAAACTTTCAAACCTATATCACAGATCCTGCTATGAATGCTACTTTCC  
ACCATCCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTATCATCCTA  
GGACAATTAATCTACTAATCTACTTCTCCATCTTCATCATTATCCTACCCCTCACCGCC  
ACATTAGAAAATAAATCATATGACCCTGCCTTAATAGCTTAATAAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTCGCATGAGTAGGACTAGAGTTAAACACTCTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTTCTATTTGCCGCCACAACAACGCACTTCATACTGGACTATGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACTATGGCTCTATTAATAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGGTCCGCATAGAAATAGGA

TTAATTATCTTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GTTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGG  
GGAGGCCATAATCAAAACAACACTGCGAAAACTAATAGCCTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTCTCCTAAAGTGACCATTATTGCTCTTATTATC  
TATATTCTATTGACAACCTCCAATATTTCTATCAATATTATCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAATTTCTATATTAATC  
CTTATATCGCTTTCAGGGATACCACCATTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTAATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTTAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCAAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAAAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCCCACCCCTTTG  
CCAAACAACCTATATACCGCCGTCAAAAGTTCACCTTATGAAAGGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAGGTTGTATTTAATAGGGGGGCCAGAGATGGGCT  
ACTTTTCTTACAAAAGGAAAAACGAACGGCCAAATGAAAACTAGCCAAAAGGAGGATTTA  
TTATTAAGCAGGATCAAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAATAAATTAATAATACACCAGGGTTATAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCC  
GTGAAGCTTAAAAACCCATTAACCTATTAATGGGTATTTTGTAGTTGGGGCACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACAACATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species G4

CytB

--AACTTTGGCTCATTATTAATAATATGCTTAGCAATCCAGATCCTTTCCGGACTATTC  
CTAGCCATACACTACACAGCAGACATCACCCCTAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAATGCGGGTTGACTTATCCAAAATCAGCATGCCAACGGGGCCTCCCTATTC  
TTCATCTGCATGTACATTACATTGCCCGAGGACTATATTACGGGTCTACATATATAAAA  
AACACATGATTTATTGGGGTAACCATCTACTAGCAACCATACTAACTGCC'TTCC'TAGGG  
TATGTTCTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCTGCCATTTCCCTACATTGGAACCACTAGTAACATGAATCTGAGGCGGATTTCCCATC  
AGCAACTCAACACTAACACGATTCTTACATTCCACTTTATACTACCATTTCGTAATTATC  
GCCCTCACAGCTATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTTAACTCCGACACAGACAAAATCCCCCTTCCACCCATACTTCAATAAAAAGACATTCTA  
GGAGTCGTACTAACAAATTGTCACCCCTACTAGTCATAGTATTCTTTTTCCCAAACCTGTTA  
GGAGACCCAGAAAACCTTCGCAAAGGCTAACCCCATATCCACCCCAATCCACATCAAACCA  
GAGTGATACTTCCATTTGCTACGCCATTCTACGATCAATCCCAAACAATTAGGGGGC  
GTAATAGCACTACTAGCATCTATTCTAGTACTAATAATCATTCCAATAACCCACACTTCT  
AAACAACGAACAAAACCTTCAAACCTATATCACAGATCCTGTATGAATGCTACTTTCC  
ACCATCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTATCATCCTA  
GGACAATTAACCTCACTAATCTACTTCTCCATCTTCATCATTATCCTACCCCTCACCGCC  
ACATTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAATAAAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTT  
TTCGCATGACTGGGGTTAGAATTAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCACTTCAAACCTGGGCTGTGAGAGATCAAG  
TCCATATCAATACCTGCATCAACTATTATTATAACTATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGGGTGCGCATAGAGATAGGA  
TTAATTATTCTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GTTCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGG  
GGAGGCCTAAATCAAACACAACCTGCGAAAACCTAATAGCCTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTCTCCTAAAGTGACCATTATTGCTCTTATCATC  
TATATTCTATTGACAACCTCCAATATTTCTATCAATATTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAATTTCTATATTAATC  
CTTATATCGCTTTCAGGGATACCACCATTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTAATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTAAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCAAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCTGTCTATAATCGATGATCCACGAAGGACCTCCCCCCTTTG  
CCAAACAACCTATATACCGCCGTCAAAAAGTTACCTTATGAAAGGAAAAAGTGAACATA  
ATACCTCAACACTAACACGTGAGGTGAGGGTGTATTTAATAGGGGGGCCAGAGATGGGCT  
ACTTTTCTACAAAAGGAAAAACGAACGGCCAAATGAAAACCTACCCAAAAGGAGGATTTA  
TTAGTAAAGCAGGATCAAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAATAAATTAATAATACACCAGGGTTATAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTAACCTATTAATGGGTATTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACAACATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species G5

CytB

--AACTTTGGCTCATTATTAATAATATGCTTAGCAATCCAGATCCTTTCCGGACTATTC  
CTAGCCATACTACACAGCAGACATCACCTAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAATGCGGGTTGACTTATCCAAAATCAGCATGCCAACGGGGCCTCCCTATTC  
TTCATCTGCATGTACATTCACATTGCCCGAGGACTATATTACGGGTCTACATATATAAA  
AACACATGATTTATTGGGGTAACCATCCTACTAGCAACCATACTAACTGCCTTCCTAGGG  
TATGTTCTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATTACCAACCTACTT  
TCTGCCATTCCCTACATTGGAAACCACACTAGTAACATGAATCTGAGGCGGATTCTCCATC  
AGCAACTCAACACTAACACGATTCTTTCACATTCACCTTTATACTACCATTCGTAATTATC  
GCCCTCACAGCTATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA

GTAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTCTA  
GGAGTCGTAACAAATTGTCAACCTACTAGTCATAGTATTCTTTTTCCCAAACCTGTTA  
GGAGACCCAGAAAACCTTCGCAAAGGCTAACCCCATATCCACCCCAATCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAATTAGGGGGC  
GTAATAGCACTACTAGCATCTATTCTAGTACTAATAATCATTCCAATAACCCACACTTCT  
AAACAACGAACAAAACCTTTCAAACCTATATCACAGATCCTGCTATGAATGCTACTTTCC  
ACCATCCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTTATCATCCTA  
GGACAATTAACCTCACTAATCTACTTCTCCATCTTCATCATTATCCTACCCCTCACCGCC  
ACATTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAATAAAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTT  
TTTCGCATGACTGGGGTTAGAATTAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAACGCCTTCAAACCTGGGCTGTGAGAGATCAAG  
TCCATATCAATACCTGCATCAACTATTATTATAACTATGGCTCTATTAATAAAAATAGGG  
GCGGCACCACTTCTGAGTACCAGAAGTGCTCCAAGGGGTGCGCATAGAGATAGGA  
TTAATTATTCTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GTTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGG  
GGAGGCCATAACAAAACAACCTGCGAAAATAATAGCCTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTCTCCTAAAGTGACCATTATTGCTCTTATCATC  
TATATTCTATGACAACCTCAAATATTTCTATCAATATTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAATTTCTATATTAATC  
CTTATATCGCTTTCAGGGATAACCACCTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTAATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTAAGCCTTTATTTTACCTACACCTATCCTACGCCACAACCATAACAATCCCACCAAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCAACGAAGGACCTCCCCCCCCTTTG  
CCGAACAACCTATATACCGCCCTCGAAAGTTACCTTGTGAGAGGAAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACTTTTCTTATAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
TTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACC  
CCCGTCCCCCATCAACgCACCCAATAATAAATTAATAATACACCAGGGTTATAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATTCACCTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTGACTGTCTCTTGTAAATTA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAACCCATTAACCTATTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTAACTTCAAACAAGGAAAAACAACATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species I7

CytB



--AAACTTCGGCTCATTACTAATAATATGTTTAAATAATCCAAATCCTCTCCGGACTATTC  
CTAGCCATGCACTACACGGCAGATATCGCTCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAGTGCAGGCTGACTAATCCAAAACCTACATGCCAACGGGGCCTCCCTGTTC  
TTCATCTGCATGTATATTCACATTGCCCGAGGATTATACTACGGATCCTACATATATAAA  
AACACATGATTCATCGGGTAACTATCCTACTAGCAACCATATTAAGTGCCTTCCCTAGGA  
TATGCTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATCACTAACCTACTT  
TCTGCCATCCCTTATGTTGGAACCACACTAGTAACATGAATTTGAGGCGGATTCTCTATC  
AGCAATTCAACGTTAACACGATTCTTTACATTTCACTTCATACTACCCTTCGTAATCATC  
GCCCTCACAGCCATCCACATCCTATTCTTACACGAAACCGGATCAAACAACCCACTGGGG  
GTAAACTCCAACACAGACAAAATCCCCTTCCACCCGTACTTTACAATAAAAGACATTTTA  
GGCGTCACACTAACAAATTACCACCTACTAACCATAGTATTCTTTTTCCCTAACCTATTA  
AGTGACCCAGAAAATTTCAAAGGCTAACCCCATATCCACCCCGGTCCACATTAACCA  
GAATGATACTTTCTATTTGCCTACGCCATTCTACGATCCATCCCAAACAACTAGGAGGT  
GTAGTAGCACTACTAGCATCTATTTTAGTACTAATAATCATGCCAATAACCCACACCTCT  
AAACAACGGACAAAAACCTTCAAACCCATATCACAATCCTGTATGATTACTACTCACT  
ACCGTCTGTACTAACCTGAGTAGCAACAAAACAGTAGAATACCCATTTATTATCCCTA  
GGACAAATAACCTCTCTAATTTACTTCTCACTCTTCATTATTATTCTACCCCTCACCGCA  
ACATTAGAAAATAAAATCATATGATCCTGCCTTAATAGCTTAACACAAAAGCA

ND2

ACCATTGTAATCAGCATCATCACAGGGACTATAATTACAGCCTCGAGCCACCCTGGTTTT  
TTCGCATGACTAGGGCTAGAATTAATACTTTAGCCGTGATCCCAATAATAGCAAACCC  
CATCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAAACGCACTTCATACTGGACTGTGGGAGATCAAA  
TCCATATCAATACCCGCATCAACTATCATTGTAACCTATGGCCCTGCTGATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGGGTGCGCATGGAAATAGGA  
TTAATTATTCTAACTTGGCAAAAATTAGCACCCATAGCTCTTATCCTCTCATCAGAAGAA  
ATTTCTCCACAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTGG  
GGAGGCCTAAATCAAACACAACACTACGAAAACCTGATAGCCCTTTTTCATCTATTTCCACATC  
GGATGAATGCTAATAACAGCCCTAATCTCTCTAAAGTAACCATCATTGCCCTTATCATC  
TATATCCTATTGACAACTCCAATATTTTTATCAATGCTCTCAAACCTCATCAAAAACTATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATCATATCAATTTCCATGTTAATC  
CTTATGTCCCTTTCAGGGATACCGCTTTAACAGGGTTTATACCAAATGAATTATCCCTA  
AAAGAACTAACAAACCACAACCTGATACCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTAAGCCTTTATTTTTACCTACACCTATCTACGCCACAACCATAACAATCCCACCGAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACCTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCTTTTG  
CCGAACAACCTATATACCGCCGTGAAAAGTTCACCTTATGAAAAGAGGAAAAGTGAACGTA  
ATAGCTTAACACTAACACGTCAAGGTGAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTACAAAAGGAAAAACGAAAAGGTGAGATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAACGCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAACGCACCCAATAGTAAATTAATAATATACCAGGGTTATAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCTAGACAAGTATTAAGGTAATGCCTGCCCA  
GTGAATCCACTTTCAACGGCCGCTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAAACCTGATCTTCTAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTAAGCCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAACAAGGAAAAACAACCCACCAAGACCCACAAGTCAACC

AAGACCCAGTATAACTGATAAATGAACCAAGTTAGACCAGGGACCACAGCGCAATCTTCT  
TCCTGAGCCCATATCAAAAAAGAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B6

CytB

--AAACTTCGGCTCATTACTAATAATATGTCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTCCCTTGGA  
TATGTTTTACCATGAGGACAAAATATCGCTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCTATATTTGGAACCACACTAGTAACGTGAATTTGAGGGGGTTCCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATTCATATTTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGCACCGACAAAATTTCTTTCCACCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCATAATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACCTTTCAAACCCATATCACAACCTGCTACTATGACTTCTACTAAC  
ACCATTTTACTACTAACATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAATCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACC  
GCAATAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCCACTGACCCTGATTT  
TTTCGCATGAGTAGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTTATTTGCTGCTACAACAAACGCCTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGGCCACACTATCAATTTAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACAGAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTAACTTCCAAAACAAGGAAAAACCCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

Species B7

CytB

--AAACTTCGGCTCATTACTAATAATATGTCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACTACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATAACAAG  
AACACATGATTCATCGGAGTACTATCCTACTAGCAACAATACTAACCGCTTTCCCTGGGA  
TATGTTTTTACCATGAGGACAAAATATCGCTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGTTCCTCCATC  
AGCAACTCAACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTCGCAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTTCACACAAAAGACATTTCTA  
GGTATCGCTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGCGAACCCAAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACAATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAATCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCCACTGACCCTGATTT  
TTCGCATGAGTAGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACAAAAAACTACTTATTTTCGGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCTAAATCAAACACAACCTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

ND2

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGAAAAACGAACGGTCAAATGAAAACTAACCGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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ND2

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAATACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAAAGTATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B8

ND2

--AAACTTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACACTACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATACAAG  
AACACATGATTCATCGGAGTGACTATCCTACTAGCAACAATACTAACCGCTTTCCTTGGA  
TATGTTTTTACCATGAGGACAAAATACACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGAGGGTTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATTCATATTCTATTCTTACACGAAACTGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACATATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACCTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAATCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCCACTGACCCTGATTT  
TTTCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAAA  
TCTATATCAATACCTGCATCAACTATTATTAGTACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAAATAGCACCGATAGCCCTTATCCTTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGCCACACTATCAATTTTAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT

GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAACCTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTGAGGTCAAGGTGTAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACCTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACCCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species D1

CytB

--AAACTTCGGCTCCCTACTAATAATATGTTTAATAATCCAAATTCTATCCGGACTATTC  
CTAGCCATACTACACAGCAGACGTCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGACTAATCCAAAATTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCGAGGATTATACTACGGGTCGTACATATACAAA  
AACACATGATTCATTGGAGTAACTATCCTATTAGCAACAATATTAACCTGCTTTCCCTAGGA  
TATGTCTACCATGAGGACAAAATATCCCTGTGAGGAGCAACAGTAATCCTAATTTACTC  
TCCGCTATCCCTACGTTGGGACTACACTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAACTCAACATTAACCCGATTCTTTCACATTCACACTTTATATTACCATTTGTAATCGTT  
GCCCTCACGGCCATCCACATTCTATTCTTACACGAAACCGGATCAAATAACCCACTAGGG  
GTGAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCACACTAAAAGACATTTTA  
GGCATCGCACTAACAAATTGCTACCTTACTAGTTATAGTATTCTTTTTTCCAACTTATTA  
GGCGACCCAGAAAACCTTCTCAAAGCCAACCCCATATCTACCCAGTCCACATTAACCA  
GAATGATACTTCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAACCTAGGAGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCC  
AAGCAACGAACAAAAACCTTCAAACCCATATCACAATCTTACTATGATTTCTACTCACC  
ACAATTTACTATTAACCTGAGTAGCAACAAAACAGTAGAGCACCCATTCATTGTCCCTA  
GGACAACTAACCTCCTTAACCTACTTCTCCATTTTATTTTTTTTCTACCAGTAATCGCC  
ATATTAGAAAATAAAATCATATGACCCCTGCCCTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGACTGGGGTTAGAATTAAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCTATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCGCTCCAACTGGACTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGGGTGCGCATAGAAATAGGA  
TTAATTATTCTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GTTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACCTGCGAAAATAATAGCCTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTGCGCTAAGGTGACCATTATTGCTCTTATCATC  
TATATTCTATTGACAACCTCCAATATTTCTATCAATATTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAGTTTCTATATTAATC  
CTTATATCGTTTCAGGGATAACCATTAAACAGGATTCATGCCAAAGTGAATTATCCCTA  
AAGGAGCTAACAAACCACAACCTAATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTTAGCCTTTATTTTACCTACACCTATCTACGCCACAACCATAACAATCCCACCGAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTGAAAGTTTACCTTGTGAAAGAGAAAAAGTGAACACA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTTATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGAAAAACGAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAAAACAAATATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAAACCTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCATTAAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACATAACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species D2

CytB

--AAACTTCGGCTCCCTACTAATAATATGTTTAATAATCCAAATTCATCCGGACTATTC  
CTAGCCATACTACACAGCAGACGTCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGACTAATCCAAAATTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGATTATACTACGGGTCGTACATATACAAA  
AACACATGATTCATTGGAGTAACCTATCCTATTAGCAACAATATTAACCTGCTTTCCCTAGGA  
TATGTCCTACCATGAGGACAAAATATCCCTGTGAGGAGCAACAGTAATCACTAATTTACTC  
TCCGCTATCCCTACGTTGGGACTACACTAGTAACATGAATCTGAGGAGGATTCCTATC  
AGCAACTCAACATTAACCCGATTCTTACATTCCTACTTTATATTACCATTTGTAATCATT  
GCCCTCAGGGCCATCCACATTTCTATTCTTACACGAAACCGGATCAAATAACCCACTAGGG  
GTGAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTACACTAAAAGACATTTTA  
GGCATCGCACTAACAAATTGTACTCTTACTAGTTATAGTATTCTTTTTTCCAACTTATTA  
GGCGACCCAGAAAACCTTCTCAAAAAGCCAACCCCATATCTACCCAGTCCACATTAACCA

GAATGATACTTCCTATTTGCCTACGCCATTCTACGATCAATCCCAAACAAACTAGGAGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCC  
AAGCAACGAACAAAAACCTTCAAACCCATATCACAAATCTTACTATGATTTCTACTCACC  
ACAATTCTACTATTAACCTGAGTAGCAACAAAACAGTAGAGCACCCATTTCATTGTCCTA  
GGACAACCTAACCTCCCTAACCTACTTCTCCATTTTTATTTTTTTTTCTACCAGTAATCGCC  
ATATTAGAAAAATAAATCATATGACCCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGGACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGACTGGGGTTAGAATTAACACACTAGCTGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCGCTCCAAACTGGACTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGGGTGCGCATAGAAAATAGGA  
TTAATTATTCTAACTTGGCAAAAATTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
GTTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGA  
GGAGGCCTAAATCAAACACAACCTGCGAAAACTAATAGCCTTTTTTCATCTATTTCCCATATC  
GGATGAATACTAATAACAGCCCTAATTTTCGCCTAAGGTGACCATTATTGCTCTTATCATC  
TATATTCTATTGACAACCTCCAATATTTCTATCAATATTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCCTGAAATGTGTCTCCACACATTATATCAGTTTCTATATTAATC  
CTTATATCGCTTTCAGGGATACCACCATTAACAGGATTCATGCCAAAGTGAATTATCCTA  
AAGGAGCTAACAAACCACAACCTAATGCCACTAGCCGTAGTGGCAGCAATCTTATCCATC  
CTTAGCCTTTATTTTTACCTACACCTATCTACGCCACAACCATAACAATCCCACCGAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAAGTTACCTTGTGAAAAGAGAAAAAGTGAACACA  
ATAGCTCAACACTAACACGTGAGGTCAAGGTGTAGTTTATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
-----

16S

CGCCTGTTTATCAAAAAACATAGCCTTTAGCCAAAACAAATATTGAAGGTAATgCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGGGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAAACCTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCCCATTA AACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACATAACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K8

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTC  
TTAGCTATACACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTCACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTTTTC

TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGGTCGTACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAAGTCTTTCCCTGGGA  
TACGTACTACCATGAGGACAAAATATCGTTATGAGGGGCAACAGTAATCACTAAGTACTC  
TCTGCCATTCCCTATGTCGGAACACATTAGTGACATGAATTTGAGGGGGTTTTCTATT  
AGCAACTCAACATTAACCCGATTCTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
ATTAATTCCGACACAGACAAAATCCCCTTCCACCATACTTCACAATAAAAGACATTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCCAGTCCACATTAACCA  
GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGTGGT  
GTAATAGCACTACTAGCATCCATTCTAGTGCTAATAATTGTACCAATAACACATACTTCC  
AAACAACGGACAAAACCTTCAAACCCCTATCACAATCTTACTATGACTCCTACTCACT  
ACCATTCTATTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCTTAATCTACTTCTCCATTTTCAATTATCATCCTACCCCTCACC  
ATATTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTGCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTGCTGCCACAACAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTGGACATGACAAAACTTGACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTTCTCCACAAAAACACTTCTTCTTTTTCAGCCACACTTTCAATCATAATCGGGGGTTGA  
GGCGGCCATAATCAAAACAACACTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT  
GGGTGGATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACGACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT  
AAGGATATTGGATCTACCTGAAATGTATCCCCACACATTATATCAATCTCCATGCTAATC  
CTTATATCACTTTGAGGTATGCCACCTCTAACAGGATTTATACAAAATGAATTATTCTA  
AAAGAATTAAACAACATAATCTAATACCACTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCAT  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAAGGTGATGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACCTAACAGAAGGAGGATTTA  
GTAGTAAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCGTACCCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAATCCTATTAACCTGTAAATGGGTATTTTGTAGTTGGGGCACTTTG  
GAAAATAACTTAACTTCAAACAAGGAAAAAACACCCACCCCAAGACCCACAAGTCAACC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT



Species L1

CytB

--AAACTTTGGCTCACTGCTAATAATATGCTTAATAATCCAAATCCTATCTGGACTATTCC  
CTAGCTATGCATTACACAGCAGATATCTCCATAGCCTTCTCCTCAATTATTCACATTTCC  
CGAAACGTAAACGCAGGTTGGCTAATCCAAAATCTACACGCCAATGGGGCATCCCTATTC  
TTTATCTGCATGTACATCCACATCGCTCGGGGTTTATACTACGGATCATACATATATAAA  
AATACATGGTTTATTGGAGTAGTCATCTACTAGCAACAATACTAAGTCTTTCCCTAGGG  
TATGTTTTTACCATGAGGACAAATATCATTATGAGGGGCAACAGTAATTACCAACCTACTC  
TCTGCCATTCATACGTTGGAACCACACTAGTAACATGAATTTGAGGGGGTTCCTATT  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTCATACTACCATTCGTAATCATC  
GCCCTGACAGCCATCCATATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
GTTAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAAGACATCCTA  
GGCATCGCACTAACAAATGTTACTTTACTAGTTATAGTATTCTTTTTCCCAATCTATTA  
GGTGACCCAGAAAATTTTCAAAGCTAATCCAATATCCACCCCATTCACATCAAACCA  
GAGTGATATTTCTATTTGCCTACGCCATCTTACGATCGATCCCAAACAAACTAGGCGGT  
GTAATAGCACTACTAGCATCCATTCTAGTATTAATAATCATACCAATAACACATACTTCC  
AAACAACGAACAAAAACCTTCAAACCTCTATCACAATCTTATTATGGCTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCATTATCCTA  
GGACAACCTAACCTCCCTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCATCGCC  
ATACTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAAATTAGCATCATTACAGGTAATAATTACAGCCTCGAGTCAACCACTGATTT  
TTCGCATGGATGGGATTAGAATTGAATACCCCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCACGTGCAATAGAAGCAACAACAAAATATTTCCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATACCCGCATCTACTATCATCATGACTATAGCGCTGTTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTACTCCAAGGTGTTTCGCATGGAAATAGGT  
TTAATTATTCTGACATGACAAAAACTAGCACCCATAGCCCTTATCCTCTCTTCAGAAGAA  
ATCCTCCACAAAAACGCTCCTTCTTTTCCAGCCACGCTTTCAATCTTAATCGGAGGTTGA  
GGCGGCCTAAACCAAACAACACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT  
GGATGAATGCTAATAACAGCCCTGATCTCTCCTAAAGTAACTGTAATTGCTCTCATTATC  
TATATTCTATTAACGACCCCTATGTTTATATCAATACTTTCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTACCTGAAATGTGTCTCCACACATTATATCAATCTCAATACTAATC  
CTTATATCACTTTCAGGTATACCACCTCTAACAGGATTCATACCAAAAATGAATTATCCCTA  
AAAGAAATTAACAAACCATAACTAATACCCTAGCTGTGACAGCAGCAGTCCATCCATC  
CTCAGCCTTTATTTTACCTACACCTATCATATGCCACAACCATAATAATTACACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACCTCAAAGGACTTGACGGTGTCCCACA  
TACAACCTAGAGGAGCTGTCTTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAGCACGTGAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACTTTTTCTATGCAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAA-----

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTTCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTAAAAACCTCATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAGCTTAACTTCCAAACAAGGAAAAACACCACCACCAAGACACACAAGTCAACC  
AAGACCCAGTATAGCTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species L2

CytB

--AACTTTGGCTCACTGCTAATAATATGCTTAATAATCCAAATCCTATCTGGACTATTC  
CTAGCTATGCATTACACAGCATATCTCCATAGCCTTCTCCTCAATTATTACATTTCC  
CGAAACGTAAACGCAGGTTGGCTAATCCAAAATCTACACGCCAATGGGGCATCCCTATTC  
TTTATCTGCATGTACATCCACATCGCTCGGGGTTTATACTACGGATCATACATATATAAAA  
AATACATGGTTTATTGGAGTAGTCATCTACTAGCAACAATACTAACTGCTTTCCCTAGGG  
TATGTTTTTACCATGAGGACAAAATATCATTATGAGGGGCAACAGTAATTACCAACCTACTC  
TCTGCCATTCCATACGTTGGAACCACACTAGTAACATGAATTTGAGGGGGTTCCTATT  
AGCAACTCAACTAACCCGATTCTTCACATTTCACTTCATACTACCATTTCGTAATCATC  
GCCCTGACAGCCATCCATATCCTATTCTTACACGAAACCGGATCAAACAACCCATTAGGG  
GTTAATTCGGACACGGACAAAATCCCCTTCCACCATACTTCACAATAAAAGACATCCTA  
GGCATCGCACTAACAATTGTTACTTTACTAGTTATAGTATTCTTTTTCCCAATCTATTA  
GGTGACCCAGAAAATTTTTCAAAGCTAATCCAATATCCACCCCATTCACATCAAACCA  
GAGTGATATTTCTATTTGCCTACGCCATCTTACGATCGATCCCAAACAACTAGGCGGT  
GTAATAGCACTACTAGCATCCATTCTAGTATTAATAATCATAACCAATAACACATACTCC  
AAACAACGAACAAAACCTTCAAACCTCTATCACAATCTTATTATGGCTCCTACTCACT  
ACCATTCTATTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAACCTAACCTCCCTAATCTACTTCTCCATTTTCATTATCATCCTACCCCTCATCGCC  
ATACTAGAAAACAAAATATGTGACCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGTAATAATTACAGCCTCGAGTCACCCTGATTT  
TTTCGCATGGATGGGATTAGAATTGAATACCCCTCGCCGTAATTCCTATGATAGCAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATACCCGCATCTACTATCATCATGACTATAGCGCTGTTAATAAAAAATAGGA  
GCAGCACCATTTCCTTCTGAGTACCAGAAGTACTCCAAGGTGTTTCGCATGGAAATAGGT  
TTAATTATTCTGACATGACAAAAACTAGCACCCATAGCCCTTATCCTCTCTTCAGAAGAA  
ATCCTCCACCAAAAAACGCTCCTTCTTTTCAGCCACGCTTTCAATCTTAATCGGAGGTTGA  
GGCGGCCCTAAACCAAAACAACTACGAAAATTAATAGCCTTTTCATCTATTTCCCATATT  
GGATGAATGCTAATAACAGCCCTGATCTCTCCTAAAGTAACTGTAATTGCTCTCATTATC  
TATATTCTATTAACGACCCCTATGTTTATATCAATACTTTCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTACCTGAAATGTGTCTCCACACATTATATCAATCTCAATACCTAATC  
CTTATATCACTTTCAGGTATACCACCTCTAACAGGATTCATACCAAAATGAATTATCCTA  
AAAGAATTAACAAAACATAATCTAATACCACTAGCTGTGACAGCAGCAGTCCATCCATC  
CTCAGCCTTTATTTTTACCTACACCTATCATATGCCACAACCATAATAATTACACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG

CCCAACAACCTATATACCGCCGTCGAAAAGTTCACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAGCACGTCGGGTGAGGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACTTTTCCCTATGCAAGGAAAAACGAAGGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCCG  
CCCGTCCCCCATCAA-----

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTTCAAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAACCTCATTAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAGCTTAACTTCCAAAACAAGGAAAAACACCACCCACCAAGACACACAAGTCAACC  
AAGACCCAGTATAGCTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K9

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGGTTATTT  
TTAGCTATACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATTATTCACATTTCC  
CGAAACGTAAACGCAGGTTGACTGATCCAAAATCTACACGCCAACGGAGCATCCCTATTC  
TTTATCTGCATATACATTCACATCGCTCGAGGCTTATACTACGGATCATAATATACAAA  
AACACATGATTTATTTGAGTAACTATTCTACTAGCAACTATACTAACTGCTTTCCGTTGGA  
TACGTACTACCATGAGGCAAAATATCATTATGAGGGGCAACAGTAATCACTAACCTACTC  
TCTGCCATTCCTATGTGCGGAACCACATTAGTAACATGAATTTGAGGGGGTTTTCCATT  
AGCAACTCAACATTAACCCGATTCTTTCACATTTCACTTTATATTACCATTCATAATCATT  
GCCCTGACAGCCATCCACATCCTGTTCTTACACGAAACCGGATCAAACAACCCATTAGGG  
ATTAATTCGGACACAGACAAAATCCCCTTCCACCCGTACTTCACAATAAAAGACATTTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA  
GAATGATACTTCCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGCGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAATACACTTCC  
AAACAACGGACAAAAACCTTCAAACCCCTGTCAAAAATCTTACTATGACTCCTACTCACT  
ACCATTCTACTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCATTATCCCTA  
GGACAACTAACCTCCCTAATCTACTTCTCCATTTTCATTATCATCTACCCCTCACCGCC  
ATATTAGAAAACAAAATTATGTGACCCCTGCCCTAATAGCTTAGTACAAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATAATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAGTTAAACACTCTCGCCGAAATTCCTATGATAGCAAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC  
TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATAGGT  
TTAATTGTTTTGACATGACAAAAGCTTGACCCATAGCCCTTATCCTCTCCTCAGAAGAG  
ATTCCTCACCAAAAAACACTTCTTCTTTCAGCCACACTTTCAATCATAAATCGGAGGTTGA  
GGCGGACTAAATCAAACACAACACTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT  
GGGTGAATGCTAATAACAGCCCTAATCTCTCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACGACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCAT  
AAGGATATTGGATCTACTGAAATGTATCCCCACACATTATATCAATCTCCATGTTAATC

CTTATATCACTTTCAGGTATGCCACCTCTAACAGGATTTATACCAAATGAATTATTCTA  
AAAGAATTAACAAACCATAATCTAATACCACTAGCTGTGACGGCAGCAGTTCATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCAT  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAATACGTCAGGTCAAGGTGTAGTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTTATATAAGGAAAAACGAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACACCG  
CCCCTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAATCCTATTAACCTGTTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAATAACTTAACTTCCAAAACAAGGAAAAACACCACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species K10

CytB

--AAACTTTGGCTCATTACTAATAATATGCTTAATAATCCAAATCCTCTCTGGATTATTT  
TTAGCTATACACTACACAGCAGATATCTCCATAGCCTTCTCCTCAATCATTACATTTCC  
CGAAACGTAAACGCAGGTTGACTAATCCAAAATCTACACGCCAACGGAGCATCCCTATTC  
TTTATCTGCATATATATTCATATCGCTCGAGGCTTATACTACGGGTCATACATATACAAA  
AACACATGATTTATTGGAGTAACTATTCTACTAGCAACTATACTAACTGCTTTCTTAGGA  
TACGTACTACCATGAGGACAAAATATCATTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATTCCTATGTCGGAACACATTAGTAACATGAATTTGAGGGGGTTTTCTATT  
AGCAATTCAACTTTAACCCGATTCTTCACATTTCACTTTATACTACCATTTCGTAATCATT  
GCCCTGACAGCCATCCATATCCTATTCTTACACGAAACCGGATCAAACAACCCATTAGGA  
GTAAACTCCGACACAGACAAAATCCCCTTCCACCCATACTTCACAATAAAAGACATTCTA  
GGCATCACACTAACAAATTGTTACCTTACTAGTCATAATCTTTTTTTTTCCCAATCTTTTA  
GGCGACCCAGAAAATTTTTCAAAGCCAATCCCATATCTACCCAGTCCACATTAACCA  
GAATGATACTTCTATTTGCCTACGCCATCCTACGATCAATCCCAAATAAACTAGGCGGT  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTGTACCAATAATACATACTTCC  
AAACAACGGACAAAACCTTCAAACCCCTGTCACAAATCTTACTATGACTCCTACTCACT  
ACCATTCTACTACTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCAATTATCCTA  
GGACAATAACCTCCCTAATCTACTTCTCCATTTTCAATTATCATCCTACCTCTCACC  
ATATTAGAAAACAAAATATGTGACCCCTGCCCTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATTAGCATCATTACAGGAACTATTATCACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGAGTAGGACTAGAATTAATACTCTCGCCGTAATTCCTATGATAGCAAAACCC  
CATCACCCACGTGCAATAGAAGCAACAACAAAATATTTTCTAACACAGGCTATAGCATCC

TCCATACTTCTATTCGCTGCCACAACAAATGCACTTCATACAGGACTATGAGAAATCAAG  
TCCATATCAATGCCCGCATCAACTATTATTATAACTATGGCCCTGTAAATAAAAAATAGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTGCTCCAAGGAATTCGAATGGAAATGGGT  
TTAATTGTTTTGACATGACAAAACTTGCACCCATAGCCCTTATCCTCTCCTCAGAAGAA  
ATTCCTCCACAAAAAACACTTCTTCTTTTTCAGCCACACTTTCAATCATAATCGGAGGTGA  
GGCGGACTAAATCAAACACAACACTACGAAAATTAATAGCCTTTTTCATCTATTTCCCATATT  
GGGTGAATGCTAATAACAGCCCTAATCTCTCTAAAGTAACTGTAATCGCTCTCATTATT  
TATATTCTACTAACGACCCCTATATTTCTATCAATACTTTCAAACCTCGTCAAAAACCATT  
AAAGATATTGGATCTACCTGAAATGTGTCCCCACACATTATATCAATCTCCATACTAATC  
CTTATATCACTTTCAGGTATGCCACCTATAACAGGATTTATACCAAATGAATTATTCTA  
AAAGAATTAACAAACCATAATCTAATACCCTAGCTGTGACGGCAGCAGTTCTATCTATC  
CTCAGTCTTTATTTTACCTACATCTATCATATGCCACAACCATAATAATTCCACCAAGC  
ACAACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCATA  
TACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATACCTCACCCTAATACGTCGGGTTCAGGGGTATTTAATAGGGTGGCCAGAGATGGGCT  
ACATTTCTATATAAGGAAAAACGAACGGTCAAATGAAAACCAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACGCGTACACCCG  
CCCCTCACCCCATCAACACGCCCGACAGTAAATTAATAATGTGCCAGAGTTAAAA---

16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCACCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAACTTAACTTCCAAAACAGGAAAAACACCACCCACCAAGACCCACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAAGGTTTCGTTTGTTC AACGATTAACAGT

Species B9

CytB

--AAACTTCGGCTCATTACTAATAATATGTCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAGACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATT  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATAACA  
AACACATGATTCATCGGAGTACTATCCTACTAGCAACAATACTAACCCTTTCCCTGGG  
TATGTTTTTACCATGAGGACAAATATCGCTATGAGGAGCCACAGTAATTACCAACCTACT  
TCCGCCATCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTCGCAATTATT  
GCTCTCACGGCCATTACATTTCTATTCTTACACGAAACTGGGTCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTACACAAAAAGACATTTCTA  
GGTATCGTACTTACAATCATCACTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
CGCGACCCAGAAAACCTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCATTTGCTTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC

ACCATTTTACTACTAACATGACTCGCAACAAAACCAGTAGAACACCCCTTTATCCTCCTA  
GGTCAACTAATCTCACTAATCTATTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

ACCATTGTAATCAGCATCATTACAGGAACTATAATCACAGCCTCAAGCCACCCTGATTT  
TTGCGCATGAGTGGGATTAGAGTTAAATACTTTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCCTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGGCCACACTATCAATTTAATCGGGGGTTGA  
GGAGGCCATAATCAAAACAACACTACGAAAGTTAATAGCCTTTTCATCCATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCCAACCTCATCAAAAATATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTCACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAAGGTGATAGTTAATGGGGTGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACTAACCGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAAATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCTT  
GTGAAGCTTAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTTAACCTTCAAACAAGGAAAAATACCATCCACCAAGACCCACAAGTCAACC  
AAGACCCAGCATAAAGTATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species A1

CytB

---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGGTTATACTACGGATCGTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCTTATTAGCAACAATACTAACTGCTTTCTTAGGA  
TATGTTGTACCATGGGGACAAAATCACTATGAGGAGCAACAGTAATAACAACCTTACTC

TCCGCCATCCCCTACGTTGGAAC TACACTAGTAACATGAATCTGAGGAGGGTTCCTATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTCCTACTTCTTACTACCATTCATAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATAAACTCTGACACGGACAAAATTTCTTCCACCCATACTTACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAAC TTTCAAAGCGAACCCAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCATACTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACCTGACTCGCAACAAAAACAGTA-----  
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ND2

ACCATTGTAATCAGCATCATTACGGG?ACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTCGCATGACTGGGGTTAGAATTAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCACTCCAAACTGGGCTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCCTTCTGAGTA-----  
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----GCCTAAATCAAACACAAC TACGAAAGTTAATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTATTAACAACCCCAATATTCCTATCAATACTCTCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCGACCTGAAATGTATCCCCACATATTATATCAATCTCTATATTAATT  
CTTATATCACTTTCAGGTATACCACCATTAACAGGGTTTATACCAAAAATTAATTATCCTA  
AAAGAACTAACAAACCAACCTAATGCCACTAGCCGTTGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACCTAGAGGAGCCTGTCCCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAAACGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species A2

CytB

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---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCGAGGGTTATACTACGGATCCTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCTATTAGCAACAATACTAACTGCTTTTCCTAGGA  
TATGTTGTACCATGGGGACAAAATACACTATGAGGAGCAACAGTAATAACAAACTTACTC  
TCCGCCATCCCTACGTTGGAACACTACTAGTAACATGAATCTGAGGAGGGTTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTCACATTCCACTTCTTACTACCATTTCATAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATAAACTCTGACACGGACAAAATTTCCCTTCCACCATACTTCACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACCTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAAAGCGAACCCAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCATACTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACCTGACTCGCAACAAAAACAGTA-----  
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ND2

ACCATTGTAATCAGCATCATTACGGG?ACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTGCGATGACTGGGGTTAGAATTAAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCACTCCAAACTGGGCTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTA-----  
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----GCCTAAATCAAAACACAACCTACGAAAGTTAATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTATTAACAACCCCAATATTCCTATCAATACTCTCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCGACCTGAAATGTATCTCCACATATTATATCAATCTCTATATTAATT  
CTTATATCACTTTACAGGTATACCACCATTAACAGGGTTTATACCAAATTAATTATCCTA  
AAAGAACTAACAAAACCAACCTAATGCCACTAGCCGTGGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTGAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAGCACGTGAGGTCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTTATAAAAGGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA



TTTATAAAACTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----

Species A3

CytB

---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGGTTATACTACGGATCGTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCCTATTAGCAACAATACTAAGTCTTTCCCTAGGA  
TATGTTGTACCATGGGACAAAATATCATTATGAGGAGCAACAGTAATAACAAACTTACTC  
TCCGCCATCCCCTACGTTGGAACCTACACTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTCAATTCCACTTCTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATAAACTCTGACACGGACAAAATTTCCCTCCACCCATACTTACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAAGTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCAAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCATACTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACCTGACTCGAACAAAAACCAGTA-----

ND2

ACCATTGTAATCAGCATCATTACGGG?ACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTTCGCATGACTGGGGTTAGAATTAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCACTCCAAACTGGGCTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
GCGGCACCATTTCACTTCTGAGTA-----

---GCCTAAATCAAACACAACCTACGAAAGTTAATAGCCTTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTATTAACAACCCCAATATTCCTATCAATACTCTCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTACCTGAAATGTATCTCCACACATTATATCAATCTCTATATTAATT  
CTTATATCACTTTCAGGTATACCACCATTAACAGGGTTTATACCAAATTAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATGCCACTAGCCGTGGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACCTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAAGGTCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTTATAAAAAGAAAAACGAACGGTCAAATGAAAACCTAACGAGAAGGAGGATTTA

GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCCT  
GTGAAGCTTA-----  
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Species A4

CytB

---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGGTTATACTACGGATCGTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCCTATTAGCAACAATACTAACTGCTTTCCCTAGGA  
TATGTTGTACCATGGGGACAAAATACACTATGAGGAGCAACAGTAATAACAACTTACTC  
TCCGCCATCCCTACGTTGGAACACTACACTAGTAACATGAATCTGAGGAGGATTCCTCTATC  
AGCAACTCAACACTAACCCGATTCTTCCACTTCCACTTCTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATAAACTCTGACACGGACAAAATTTCTTCCACCATACTTACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCTAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCATACTTCC  
AAACAACGAACAAAACCTTCAAACCCCTATCACAAGTCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACCTGACTCGCAACAAAACAGTA-----  
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ND2

ACCATTGTAATCAGCATCATTACGGG?ACTATAATTACAGCCTCGAGCCACCCTGATTT  
TTCGCATGACTGGGGTTAGAATTAAACACACTAGCTGTAATCCCAATAATAGCAAACCC  
CACCACCCACGGGCAATAGAAGCAACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTCCTATTTGCCGCCACAACAAACGCACTCCAAACTGGGCTGTGAGAGATCAAG  
TCTATATCAATACCTGCATCAACTATTATTATAACCATGGCTCTATTAATAAAAAATAGGG  
CGGCACCATTTCACTTCTGAGTA-----  
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---GCCTAAATCAAACACAACACTACGAAAGTTAATAGCCTTTTCATCCATCTCTCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTATTAACAACCCCAATATTCCTATCAATACTCTCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTACCTGAAATGTATCTCCACACATTATATCAATCTCTATATTAATT  
CTTATATCACTTTCAGGTATAACCACCATTAACAGGGTTTATACCAAATAATTATCCTA  
AAAGAACTAACAAAACCAACCTAATGCCACTAGCCGTTGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAAGTTACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAGCACGTCAGGTCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTCAAATGAAAACTAACCAGAAGGAGGATTTA  
GTAGTAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTAACTGTCCTTGTAACTAA  
TTTATAAAAAGTATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species M1

CytB

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---GCTATGCACTATACAGCAGATATTTCCATAGCTTTCTCCTCAATCGTTCATATTTAC  
CGAAATGTAAACGCAGGTTGACTAATTCAAACCTACACGCAAACGGAGCCTCCTTATTC  
TTCATTTGTATGTATATCCACATTGCTCGAGGACTCTACTACGGCTCATAATATTTAAA  
AACACATGGTTTCATTGGAGTGATTATTCTACTAACAACAATACTAACCCTTTCCCTAGGA  
TATGTCCTACCATGAGGACAAATGTCACTATGAGGGGCAACAGTGATAACAACTTACTT  
TCTGCCATCCCTACATCGGAAAAACCTTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAATTCAACACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCCCTCACGGCCATCCATATCCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTACACAAAAAGACATTTCTA  
GGCATCGTACTTACAATCATCACCTTATTAAGTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCCATCCTGCGATCAATTCAAACAAACTAGGAGGT  
GTAATAGCACTACTAGCATCTATCCTAGTACTAATAATCATAACCAATAACCCACACCTCT  
AAACAACGAACAAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACCTGACTCGCAACAAAAACAGTA-----  
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ND2

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----GCCTAAATCAAAACACAACCTACGAAAGTTAATAGCCTTTTCATCTATCTCCCACATT  
GGATGAATGCTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTCTTGACAACCCCTATATTCTTATCAATACTATCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTACCTGAAATGTGTCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGAATACCACCTCTAACAGGATTCATACCAAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCCCTATAACCACTAGCCGTGACAGCAGCAGTCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTGCCACCCTTTG  
CCCACCAACCTATATACCGCCGTCGGAAGTTCACCTTGTGAGAGAGAAAAAGTGAACATA  
ATAGCTTAACACTAGCACGTCAGGTCAGGGGTATTTAATAGGGGGGA-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species A5

CytB

----GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAATTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGGTTATACTACGGGTCGTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCTATTAGCAACAATACTAACTGCTTTTCCTAGGA  
TATGTCTACCATGAGGACAAAATACTATGAGGAGCAACAGTAATCACTAATTTACTC  
TCCGCTATCCCCTACATTGGGACTACACTAGTAACATGAATCTGAGGAGGGTTCCTATC  
AGCAACTCAACATTAACCCGATTCTTCACATTTCACTTCATACTACCATTTCGTAATCATT  
GCCCTACGGCCATCCATATTCTATTCTTACACGAGACCGGATCAAACAACCCACTGGGA  
ATCAACTCTGACACGGACAAAATTTCTTTCCACCATACTTCACACAAAAGACATTTTA  
GGTATCGCACTTACAATCGTCACTTACTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTTCAAAGCGAACCCTAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCTTATTTGCCTACGCCATTCTAGGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCACCAGTAGCATCCATTCTAGTACTAACAATTATACCAATAACTCATATTTCC  
AAACAACGAAACGAAAACCTTCAAACCCCTATCACAAATCCTACTATGACTCCTACTCACC  
ACAATCCTACTATTAACCTGACTCGCAACAAAACCCAGTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCAAAAGTTACCTTGTGAAAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACCCGTCAGGTCAAGGTGTATTTTATGGGGTGGC-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species A7

CytB

---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCGAGGGTTATACTACGGATCGTACATATACAAA  
AACACATGATTCATTGGAGTGACCATCTATTAGCAACAATACTAACTGCTTTCCTAGGA  
TATGTCCTACCATGAGGACAAAATACACTATGAGGAGCAACAGTAATCACTAATTTACTC  
TCCGCCATCCCTACGTTGGGACTACACTAGTAACATGAATCTGAGGGGGATTCTCTATC  
AGCAATTCAACACTAACCCGATTCTTCACATTTCACTTTTTACTACCATTTCGTAATTATT  
GCTCTCACGGCCATCCACATTTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATAAACTCTGACACGGACAAAATTTCTTTCCACCCATACTTCACACAAAAGACATTCTA  
GGTATCGTACTTACAATCGTCACCTTACTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTTCAAAGCGAACCCCATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTGGGGGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACCTCC  
AAGCAACGAACAAAACCTTCAAACCCATATCACAAATCCTACTATGACTCCTACTCACC  
ACAATCCTACTATTAACCTGACTCGCAACAAAACCCAGTA-----  
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ND2

---GCCTAAATCAAAACAACTACGAAAGTTAATAGCCTTTTCATCCATTTCTCACATT

GGATGAATGCTAATAACAGCCCTAATCTCTCCTAAAGTAACTGTTATCGCTCTCATTATC  
TACATCCTATTAACAACCCCAATATTCCTATCAATACTCTCAAACCTCATCAAAAACCTATT  
AAAGACATCGGATCTATCTGAAATGTCTCTCCACATATTATATCAATCTCTATATTAATT  
CTTATATCACTTTCAGGTATACCACCATTAACAGGGTTTATACCAAAATTAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATGCCACTAGCCGTTGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCCCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCAAAGTTACCTTGTGAAAGAAAAAAGTGAACACA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTATTTTTATGGGGTGGC-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCACGCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCACTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACTGATCTTCCAGTCCAAAAGCTAGAATACCCATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species N1

CytB

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---GCCATGCACTACACAGCAGACATCTCCAAGCCTTCTCCTCAATTATCCACATTTCC  
CGAAACGTAAACGCAGGTTGACTTATCCAAAACCTTACACGCCAACGGAGCCTCTCTATT  
TTTTATCTGCATGTATATCCACATCGCTCGAGGATTATACTACGGATCCTACATATACAAA  
AACACATGGTTCATTGGGGTGACCATCCTATTAGCAACAATACTAACTGCTTTCCTAGGA  
TATGTGTTACCATGAGGCCAAATATCACTATGAGGGGCAACAGTAATCACTAACTTACTC  
TCTGCCATCCCATATGCTGGAACTACACTAGTAACATGAATCTGAGGGGGTTCTCCATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTATACTACCATTCATAATTATT  
GCTCTCACGGCCATTATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATTAACCTCGACACGGACAAAATTTCTTCCACCCATACTTACACAAAAAGACATTCTA  
GGTATCGTACTTACAATCGTCACCTTATTAATTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGGCGAACCCCATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATTCTGCGATCAATCCCTAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACATTTCC  
AAACAACGAACGAAAACCTTTCAAACCCCTATCACAAGTGCTACTATGACTCCTACTCACC  
ACCATTTTACTACTAACCTGACTCGAACAAAACCCAGTA-----  
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ND2









CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTA-----

Species M5

CytB

---GCCATGCACTACACAGCAGATATTTCCATAGCTTTCTCCTCAATCGTTCATATTTAC  
CGAAATGTAAACGCAGGTTGACTAATTCAAAACCTACACGCAAACGGAGCCCTCCTTATTC  
TTCATTTGTATGTATATCCACATTGCTCGAGGACTCTACTACGGCTCATAACATATTTAAA  
AACACATGGTTCATTGGAGTGATTATTCTATTAACAACAATACTAACTGCTTTTCCTAGGA  
TATGTGCTACCATGAGGACAAAATACACTATGAGGAGCAACAGTAATAACTAACTTACTC  
TCTGCCATCCCTATGTTGGAATAAACTAGTAACATGTATCTGAGGGGGATTCTCTATC  
AGCAACTCAACGCTAACCCGATTCTTACATTTCACTTTTTACTACCCTTCGTAATTATT  
GCTCTCACAGCCATCCATATCCTATTCTTACACGAAACCGGGTCAAACAACCCACTAGGA  
ATTAACTCTGACACGGACAAAATTTCCCTTCCACCCATACTTCACAATAAAAAGACATTCTA  
GGCATCGTACTTACAATTGTCACCTTACTAGTCATAGTATTCTTTTTCCCAAACCTACTA  
GGCGACCCAGAAAACCTTTTCAAAAAGCGAACCCCATATCCACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACCTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCATATTTCC  
AAACAACGAAACGAAAACCTTCAAACCCCTATCACAAATTTACTATGACTTCTACTTACC  
ACCATTCTACTATTAACCTGACTCGCAACAAAACCCAGTA-----

ND2

---GCCTAAATCAAAACACAACCTACGAAAGTTAATAGCCTTTTCATCTATCTCCACATT  
GGGTGAATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTGACAACCCCTATATTCCTATCAATACTATCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTACTTGAAATGTATCTCCACACATTATATCAATTTCTATGTTAATC  
CTTATATCACTCTCAGGAATACCACCTCTAACAGGGTTTATACCAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCCCTATACCACTAGCCGTGACAGCAGCAGTCCATCAATC  
CTCAGCCTTTA-----

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACTTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCCTTTG



CCCAACAATCTATATACCGCCGTCGAAAAGTTCACCTTATGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTTCAGGGGTATTTAATAGGGGGGA-----

16S

CGCCTGTTTATCAAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAATCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTTCAAAAAGCTAGAATATCTATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----

Species N5

CytB

---GCCATGCACTACACAGCAGACATCTCCAAGCCTTCTCCTCAATTATCCACATTTCT  
CGAAACGTAAACGCAGGTTGACTAATCCAAAACCTACACGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATATATATCCACATCGCTCGAGGATTATACTACGGATCGTACATATACAAA  
AACACATGGTTCATTGGGGTGACCATCCTATTAGCAACAATACTAACTGCTTTCCCTAGGA  
TATGTGTTACCATGAGGACAAATATCACTATGAGGGGCAACAGTAATAACTAACTTACTC  
TCTGCCATCCCTATGCTGGAACTACACTAGTAACATGAATCTGAGGGGGATTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTCACATTTCACTTTATACTACCATTCGTAATCATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGGTCAAACAACCCACTAGGA  
ATTAACCCGACACGGACAAAATTTCTTCCACCCATACTTACACAAAAAGACATTTCTA  
GGTATCGTACTTACAATCGTCACCTTATTAATTATAGTCTTTTTTTTCCCAAACCTTA TA  
GGCGACCCAGAAAACCTTTCAAAGCCAACCCCATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCATATTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTGCTACTATGAATCCTACTCACC  
ACTATTCTACTACTAACCTGACTCGAAACAAAACAGTA-----

ND2

---GCCTAAATCAAACGCAACTGCGAAAAGTTAATAGCCTTTTTCATCTATTTCCACATT  
GGGTGGATGTTAATAACAGCCCTAATCTCCCTAAAGTAACTGTTATTGCTCTCATTATC  
TACATCCTCTTAAACAACCCCTATATTTCTATCAATACTCTCAAACCTCATAAAAACCAT  
AAAGACATCGGATCTGCTTGAAATGTGTCTCCACACATTATATCAATTTCTATGTTAATC

CTTATGTCACTCTCAGGAATACCACCATTAACAGGGTTTATGCCCAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATACCCTAGCCGTGGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCCCAGATTACTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGAACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAGGGTGTATTTTAGGGGGGGG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAACCTCATTAAACCTGTTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAGCTTAACTTCCAAACAAGGAAAAACATCACCCACCAAGACACACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

Species 01

CytB

---GCCATACACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATTTCT  
CGAAACGTAAACGCAGGCTGACTAATCCAAAACCTTACATGCTAACGGAGCCTCTCTATTT  
TTTATCTGCATATATATCCACATCGCTCGAGGATTATACTATGGGTCGTACATATACAAA  
AACACATGGTTCATTGGGGTGACCATCTATTAGCAACAATACTAAGTCTTTCCCTAGGA  
TATGTGCTACCATGAGGACAAAATACACTATGAGGAGCAACAGTAATCACTAAGTACTC  
TCTGCCATCCCTATGTTGGAACACTACACTAGTAACATGAATCTGAGGAGGGTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTACATTTCACTTTATACTACCATTTCGTAATTATT  
GCCCTCAGGCCATTCATATTTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATTAACTCTGACACGGAGAAAATTTCTTTCCACCCATACTTCACAAAAAAGACATTCTA  
GGTATCGTACTTACAATTGTCACCTTATTAAGTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTTCAAAGCGAACCCCATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCATATTTCC  
AAACAACGAACGAAAACCTTCAAACCCCTATCACAAATTTTACTATGAATCCTGCTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAACAGTA-----  
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ND2

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ACTATTCTACTACTAACCTGACTCGCAACAAAACCAGTA-----  
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ND2

ACCATTGTAGCCAGCATCATTACAGGAACTATAATCACAGCCTCTAGTCACCACTGATTT  
TTTGCATGATTTCGGGTTAGAATTAATACTCTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTGACACAAGCTATGGCATCC  
TCCATACTTCTATTTGCCGCCACAACAAACGCCTTCATACAGGGTTATGAGAGATCAAG  
TCTATGTCAATACCCGCATCAACTATTATTGTAACCATAGCCTTATTAATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTACTACAAGGGGTGCGCATGGAAATAGGT  
TTAATTATTCTAACATGACAAAAACTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
ATTCTCCACAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGAGGCCATAATCAAACGCAACTGCGAAAGTTAATAGCCTTTTCATCTATTTCCACATT  
GGGTGGATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTAACAACCCCATATTCTATCAATACTCTCAAACCTCATAAAAACCATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATCTCTATGTTAATC  
CTTATGTCACCTCAGGAATACCACCATTAACAGGGTTTATGCCCAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTACGGTGTATTTTAGGGGGGGGC-----  
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16S

CGCCTGTTTATCAAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCTT  
GTGAAGCTTA-----  
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Species N8

CytB

---GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCTAACGGAGCCTCACTATTC  
TTTATCTGCATATATATCCACATCGCCCAGGATTATACTACGGATCGTACATATACAAA  
AACACATGGTTTCATTGGAGTGACTATCCTATTAGCAACAATACTAAGTCTTTCCCTAGGA  
TATGTGCTACCATGAGGACAAAATCACTATGAGGAGCAACAGTAATAACTAAGTACTTACTC

TCTGCCATCCCCTACGTTGGAAC TACACTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTTTACTACCATTCGTAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTCCCTTCCACCCATACTTCACATTTAAAAGACATTTTA  
GGCATCGTACTAACAATTGTCACCTTATTAATTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCAGCCAGAAAAC TTTCAAAGGCCAACCCAATATCTACCCAGTCCACATCAAACCA  
GAGTGATACTTCCATTTGCTTACGCTATTCTACGATCAATCCCAAACAAATTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCACATTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTGCTACTATGAATCCTACTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAAC CAGTA-----  
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ND2

ACCATTGTAGCCAGCATCATTACAGGAACTATAATCACAGCCTCTAGTCAACCACTGATTT  
TTTGCATGATTCGGGTTAGAATTAATACTCTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTGACACAAGCTATGGCATCC  
TCCATACTTCTATTTGCCGCCACAACAAACGCACTTCATACAGGGTTATGAGAGATCAAG  
TCTATGTCAATACCCGCATCAACTATTATTGTAACCATAGCCTTATTAATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTACTACAAGGGGTGCGCATGGAAATAGGT  
TTAATTATTCTAACATGACAAAAGCTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGAGGCCTAAATCAAACGCAACTGCGAAAGTTAATAGCCTTTTCATCTATTTCCACATT  
GGGTGGATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTAAACACCCCATATTCCTATCAATACTCTCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATCTCTATGTTAATT  
CTTATGTCACTCTCAGGAATACCACCATTAACAGGGTTTATGCCCAAATGAATTATCCCTA  
AAAGAACTAACAAACCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTACTACAAGTAAAAACTTAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACCTAGAGGAGCCTGTCCCTATAATCGATGATCCACGAAGAACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTACAGGTGATTTTTAGGGGGGGC-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA  
TTTATAAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTA-----  
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Species N9

CytB

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---GCCATGCACTACACAGCAGACATCTCCCAAGCCTTCTCCTCAATTATCCACATTTCT  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATGTATATCCACATCGCCCGAGGATTATACTACGGATCGTACATATACAAA  
AACACATGGTTTCATTGGAGTGACTATCCTATTAGCAACAATACTAAGTCTTTTCCCTAGGA  
TATGTGCTACCATGAGGACAAAATACACTATGAGGAGCAACAGTAATAACTAAGTACTC  
TCTGCCATCCCTACGTTGGAAGTACACTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTACATTTCACTTTTTACTACCCTTCGTAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAGACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTCCCTTCCACCATACTTACATTAAGACATTTTA  
GGTATCGTACTTACAATTGTACCTTATTAAGTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTTCAAAAAGCGAACCCAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAATTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCACATTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTGCTACTATGAATCCTACTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAAACCAGTA-----  
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ND2

ACCATTGTAGCCAGCATCATTACAGGAACTATAATCACAGCCTCTAGTCACCCTGATTT  
TTTGCATGATTCGGGTTAGAATTAATACTCTAGCCGTAATCCCAATAATAGCAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTGACACAAGCTATGGCATCC  
TCCATACTTCTATTTGCCGCCACAACAACGCCTTCATACAGGGTTATGAGAGATCAAG  
TCTATGTCAATACCCGCATCAACTATTATTGTAACCATAGCCCTTATTAATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTACTACAAGGGGTGCGCATGGAAATAGGT  
TTAATTATTCTAACATGACAAAAACTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCCTTATTTAGCCACACTCTCAATCATAATCGGAGGTTGA  
GGAGGCCATAATCAAAACGCAACTGCGAAAGTTAATAGCCTTTTCATCTATTTCCACATT  
GGGTGGATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTAACAACCCCATATTCTATCAATACTCTCAAACCTCATCAAAAACCATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATCTCTATGTTAATC  
CTTATGTCACCTCAGGAATACCACCATTAACAGGGTTTATGCCCAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTACTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGAACCCTCACCACCCTTTG  
CCCAACAACCTATATACCGCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAGGGTGTATTTTATGGGGGGG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACTAA

TTTATAAAACTGATCTTCCAGTTCAAAAAGCTAGAATATTTATATAAGACGAGAAGACCCCT  
GTGAAGCTTA-----

Species N10

CytB

---GCCATGCACTACACAGCAGACATCTCCAAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGATTAATCCAAAACCTTACATGCTAACGGAGCCTCACTATTC  
TTTATCTGCATGTATATCCACATCGCCCCGAGGATTATACTACGGATCGTACATATACAAA  
AACACATGGTTCATTGGAGTGACTATCCTATTAGCAACAATACTAAGTCTTCCCTAGGA  
TATGTGCTACCATGAGGACAAATATCACTATGAGGAGCAACAGTAATAACTAAGTACTC  
TCTGCCATCCCCTACGTTGGAACCTACACTAGTAACATGAATCTGAGGAGGATTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTCAATTTCACTTTTTACTACCCTTCGTAATTATT  
GCTCTCACGGCCATCCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATCAACTCTGACACGGACAAAATTCCCTTCCACCCATACTTACATTTAAAAGACATTTTA  
GGCATCGTACTAACAAATTGTCACCTTATTAATTATAGTCTTTTTTTTTCCCAAACCTATTA  
AGCGACCCAGAAAACCTTTCAAAGGCCAACCCAATATCTACCCAGTCCACATCAAACCA  
GAGTGATACTTCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAAATTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCACATTTCC  
AAACAACGAACAAAAACCTTCAAACCCCTATCACAAGTGCTACTATGAATCCTACTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAACCCAGTA-----

ND2

ACCATTGTAGCCAGCATCATTACAGGAACTATAATCACAGCCTCTAGTCACCACTGATTT  
TTTGCATGATTCGGGTTAGAATTAATACTCTAGCCGTAATCCCAATAATAGCAAAACCC  
CACCACCCACGAGCAATAGAAGCAACAACAAAATACTTCTTGACACAAGCTATGGCATCC  
TCCATACTTCTATTTGCCGCCACAACAAACGCACTTCATACAGGGTTATGAGAGATCAAG  
TCTATGTCAATACCCGCATCAACTATTATTGTAACCATAGCCTTATTAATAAAAAATGGGG  
GCAGCACCATTTCACTTCTGAGTACCAGAAGTACTACAAGGGGTGCGCATGGAAATAGGT  
TTAATTATTCTAACATGACAAAAACTAGCACCCATAGCCCTTATCCTCTCATCAGAAGAA  
ATTCTCCACCAAAAAACACTCCTTATCTCAGCCACACTCTCAATCATAATCGGGGGTTGA  
GGAGCCCTAAATCAAACGCAACTGCGAAAGTTAATAGCCTTTTTCATCTATTTCCACATT  
GGGTGGATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTAAACAACCCCATATTCCTATCAATACTCTCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATCTCTATGTTAATC  
CTTATGTCACTCTCAGGAATACCACCATTAACAGGGTTTATGCCCAAATGAATTATCCTA  
AAAGAACTAACAAACCAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----

12S

GGCCCGCCAGATTACTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGAACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTGAGGGTGTATTTTTAGGGGGGGC-----

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAACATA  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCTT  
GTGAAGCTTA-----

Species 02

CytB

---GCCATACACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATTTCT  
CGAAACGTAAACGCAGGCTGACTAATCCAAAACCTTACATGCTAACGGAGCCTCTCTATTT  
TTTATCTGCATATATATCCACATCGCTCGAGGATTATACTATGGGTCGTACATATACAAA  
AACACATGGTTCATCGGGGTGACCATCCTATTAGCAACAATACTAACTGCTTTCCCTAGGA  
TATGTGCTACCATGAGGACAAAATACACTATGAGGAGCAACAGTAATCACTAACTTACTC  
TCTGCCATCCCTATGTTGGAACACTACTAGTAACATGAATCTGAGGAGGGTTCTCTATC  
AGCAACTCAACACTAACCCGATTCTTACACTTTCACCTTTATACTACCATTTCGTAATTATT  
GCCCTCACGGCCATTCATATTTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGA  
ATTAACTCTGACACGGAGAAAATTTCTTCCACCCATACTTCAAAAAAAGACATTCTA  
GGTATCGTACTTACAATTGTACCTTATTAACCTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAACCTTTCAAAGGCGAACCCAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCATTTGCCTACGCTATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCATATTTCC  
AAACAACGAACGAAAACCTTCAAACCCCTATCACAATTTTACTATGAATCCTGCTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAACAGTA-----

ND2

---GCCTAAATCAAACGCAACTGCGAAAGTTAATAGCCTTTTCATCTATTTCCACATT  
GGGTGAATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTGACAACCCCTATATTTCTCAATACTATTAAACTCATCAAAAACCATT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATATCAATTTCTATGTTAATC  
CTTATGTCACTCTCAGGAATACCACCATTAACAGGGTTTATGCCCAAATGAATTATCCTA  
AAAGAATAACAAAACCAACCTAATACCACTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----



12S

GGCCCGCCAGATTACTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCATACACAACCTAGAGGAGCCTGTCTTATAATCGATGATCCACGAAGAACCTCACCACCCTTTGCCCTAACCAACCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAGAAAAAGTGAACATAATAGCTCAACACTAACACGTCAGGTCAGGGTGTATTTTTATGGGGGGC-----

16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAAACAAGTATTAAAGGTAATGCCTGCCCACTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGTCCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACTAATTTATAAAAAGTATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCTGTGAAGCTTA-----

Species 03

CytB

---GCCATACACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATTTCTCGAAACGTAAACGCAGGCTGACTAATCCAAAACCTACATGCTAACGGAGCCTCTCTATTTTTATCTGCATATATATCCACATCGCTCGAGGATTATACTATGGGTTCGTACATATACAAAACACATGGTTTATCGGAGTTATTATCCTATTAGCAACAATACTAACTGCTTTCCTAGGATATGTGCTACCATGAGGACAAATATCACTATGAGGAGCAACAGTAATCACTAACTTACTCTCTGCCATCCCTATGCTGGAACCTACACTAGTAACATGAATCTGAGGAGGGTTCTCTATCAGCAACTCAACACTAACCCGATTCTTTCACATTTCACTTTATACTACCATTTCGTAATTATTGCCCTCACGGCCATTCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTAGGAATTAACCTGACACGGAGAAAATTTCCCTTCCACCCATACTTCACAAAAAAGACATTCTAGGTATCGTACTTACAATTGTCACCCATTAACTATAGTCTTTTTCCTTCCAAACCTATTAGCGACCCAGAAAACCTTTCAAAGGCCAACCAATATCTACCCAGTCCACATCAAACCAGAATGATACTTCTATTTGCCTACGCTATTCTACGATCAATCCCAAACAAACTAGGAGGTGTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACTCATATTTCCAAACAACGAACGAAAACCTTCAAACCCCTATCACAATTTTACTATGAATCCTGCTCACCCTATTCTACTACTAACCTGACTCGCAACAAAACAGTA-----

ND2

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----GCCTAAATCAAACGCAACTGCGAAAGTTAATAGCCTTTTCATCTATTTCCCACATT  
GGGTGAATGTTAATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTTATTATT  
TACATCCTCTTGACAACCCCTATATTCTATCAATACTATCAAACCTCATCAAAAACCAT  
AAAGACATCGGATCTGCTTGAAATGTATCTCCACACATTATAtCAATTTCTATGTTAATC  
CTTATGTCACCTCAGGAATACCACCATTAACAGGGTTTATGCCAAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTAATACCCTAGCCGTAGTAGCAGCAATCCTATCAATC  
CTCAGCCTTTA-----  
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12S

GGCCCGCCAGATTACTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCCAT  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGAACCTCACCACCCTTTG  
CCTAACACCTATATACCGCCGTCGAAAGTTCACCTTGTGAAAGAGAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTGAGGTGATTTTTATGGGGGGGC-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCTTGTAAC  
TTTATAAACTGATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCT  
GTGAAGCTTA-----  
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Species E1

CytB

----GCCATGCACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATCATCCACATTTCC  
CGAAACGTAAACGCAGGCTGACTAATCCAAAACCTACACGCAAACGGAGCCTCTCTATT  
TTTATTTGCATGTATATCCACATTGCCCGAGGATTATACTATGGATCCTACATATATAAA  
AACACATGGTTTCATTGGAGTGACTATCCTATTAGCAACAATACTAACTGCC'TTCCCTAGGA  
TATGTGCTACCATGAGGACAAAATACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCCTACATCGGAACCACACTAGTAACATGAATCTGAGGTGGGTCTCCATC  
AGCAACTCAACCTAACCCGATTCTTCACATTTCACTTTATACTACCATTTCGTAATTATT  
GCCCTCACGGCCATTCATATTCTATTCTTACACGAAACCGGATCAAACAACCCACTTGGG  
GTTAACTCTGACACGGAGAAAATTCCCTTCCACCATACTTCACAAAAAAGACATTTTA  
GGTATCGTACTAACAAATCGTCACTTATTAACCTATAGTCTTTTTTTTTCCCTAACCTGTTA  
GGCGACCCAGAAAACCTTTTCAAAGGCGAACCCTAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCTTACGCCATTCTACGATCAATCCCAAACAACTAGGAGGT  
GTAATAGCACTACTAGCATCTATTCTAGTACTAATAATCATACCAATAACTCACATTTCC  
AAACAACGAACAAAAACCTTCAAACCCATATCACAAACCTACTATGAATCCTACTCACC  
ACTATTCTACTACTAACCTGACTCGCAACAAAAACCGTA-----  
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ATTAAC TCGGACACGGACAAAATTTCTTTCCACCATACTTCACACAAAAGACATTCTA  
GGTATCGGACTTACAATCATCACCTTATTAAC TATAGTCTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAAC TTTTCAAAGCGAACCCAATATCTACCCCAGTCCACATCAAACCA  
GAATGATACTTCCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAACAAAAC TTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGCAACAAAACAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAATCTCACTAATCTATTTTTTCCATTTTCATTATCATCCTACCCCTCACCGCC  
ATACTAGAAAATAAAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

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-----TAGAAGCGACAACAAAATATTTCTTAAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCCTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTAGTACTATAGCTCTATTAATAAAAAATAGGA  
GCAGACCAATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAAATAGGC  
CTAATCATCTTAAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTCATCAGAAGAA  
GTTCTACACCAAAAAACACTACTTATTTTCGCCACACTATCAATTTTAAATCGGGGGTTGA  
GGAGGCC TAAATCAAACACAAC TACGAAAGTTAATAGCCTTTTCATCTATTTCCACATT  
GGATGAATGCTGATAACAGCCCTAATCTCCCCTAAAGTAACTGTTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCTAACTCATCAAAAAC TATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCCTTATTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGGCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGCAAAAACGAACGGTCAAATGAAAAC TAAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCTGTATGAATGGCCACATGAGAATCTGACTGTCTCTTGTAAC TAA  
TTTATAAAAAC TATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAAC TTAAC TTTCAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC  
AAG-----  
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Species B11

CytB

--AAACTTCGGCTCATTACTAATAATATGCCTAATAATCCAAATCCTTTCCGGACTATTT  
CTAGCCATACTACACAGCAGACATCTCCCTAGCCTTCTCCTCAATTATCCACATCTCC  
CGAAACGTTAACGCAGGTTGACTAATCCAAAACCTGCACGCAAACGGAGCCTCTCTATTC  
TTTGTCTGCATGTATATGCACATTGCGCGAGGATTATACTACGGATCCTACCTATACAAG  
AACACATGATTCATCGGAGTACTATCCTACTAGCAACAATACTAACCGCTTTCCTTGGA  
TATGTTTTACCATGAGGACAAATATCACTATGAGGAGCCACAGTAATTACCAACCTACTC  
TCCGCCATCCCTATATTGGAACCACACTAGTAACGTGAATTTGAGGGGGTTCCTCATC  
AGCAACTCAACACTAACCCGATTCTTACATTTTCACTTTTTTACTACCATTTCATAATTATT  
GCCCTCACGGCCATTCATATTCTATTCTTACACGAGACTGGATCAAACAACCCACTAGGA  
ATTAACCTCGGACACGGACAAAATTTCTTTCCACCCATACTTACACAAAAAGACATTCTA  
GGTATCGGACTTACAATCATCACCTTATTAACTATAGTCTTTTTTTTTCCCAAACCTATTA  
GGCGACCCAGAAAATTTTCAAAGCGAACCCTAATATCTACCCAGTCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCTATCCTGCGATCAATCCCTAACAAATTAGGGGGC  
GTAATAGCATTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACTTCT  
AAACAACGAAACAAAACTTTCAAACCCATATCACAAGTGCTACTATGACTTCTACTCACC  
ACCATTTTACTACTAACATGACTCGAACAAAAACCAGTAGAACACCCCTTTATCCTTCTA  
GGTCAACTAATCTCACTAATCTATTTTTCCATTTTCATTATCATCTACCCCTCACCGCC  
ATACTAGAAAATAAATCATATGACCCTGCCTTAATAGCTTAGTACAAAGCA

ND2

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-----TAGAAGCGACAACAAAATATTTCTTAACACAAGCTATGGCATCT  
TCTATACTTTTATTTGCTGCTACAACAAACGCACTTCTCACAGGACTGTGAGAAATCAA  
TCTATATCAATACCTGCATCAACTATTATTATGACTATAGCTCTATTAATAAAAAATAGGA  
GCAGCACCATTTCACTTCTGAGTGCCAGAAGTACTACAAGGAGTCCGCATAGAAATAGGC  
CTAATCATCTTAACATGACAAAAACTAGCACCGATAGCCCTTATCCTTTCATCAGAAGAA  
GTTCTACACAAAAAACTACTTATTTTCGGCCACACTATCAATTTAATCGGGGGTGA  
GGAGGCCATAAATCAAACACAACACTACGAAAGTTAATAGCCTTTTTTTCATCTATTTCCACAT  
GGATGAATGCTGATAACAGCCCTAATCTCCCTAAAGTAAGTATTGCTCTCCTTATT  
TATATTCTATTAACAACCCCAATATTTCTATCAATATTATCTAACTCATCAAAAACTATT  
AAAGATATCGGATCTACCTGAAACGTATCTCCACACATTATATCAATCTCTATACTAATC  
CTTATATCACTCTCAGGTATGCCACCCCTAACAGGGTTTATGCCAAAATGAGTTATTCTA  
AAAGAACTAACAAACCACAATCTGATGCCACTAGCCGTGATAGCAGCAGTACTATCAATC  
CTTAGCCTTTATTTTTACCTACATTTATCTTATGCTACAACCATAACAATCCCACCGAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAACTCAAAGGACTTGACGGTGTCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTCACCACCCTTTG  
CCCAACAACCTATATACCGCCGTGAAAAGTTCCCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTGAGGGCAAGGGGTATTTAATGGGGGGCCAGAGATGGGCT  
ACATTTCTATAAAAAGCAAAAACGAAACGGTCAAATGAAAATAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

CGCCTGTTTTATCAAAAACATAGCCTTTAGCCAGACAAGTATTGAAGGTAATGCCTGCCCA  
GTGAAGTCACTTTCAACGGCCGCGGTACCCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGACCTGTATGAATGGCCACATGAGAATCTGACTGTCCTTGTAACTAA  
TTTATAAAAAGTATCTTCCAGTCCAAAAGCTAGAATATTTATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCTATTAAGCCTATTAATAGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAACCTTAACTTCCAAAACAAGGAAAAACACCATCCACCAAGACCCACAAGTCAACC

AAG-----  
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*T. eperopeus*

CytB

---GCCATACACTATACAGCAGACATCTCTCTAGCCTTTTCCTCAATTATCCACATCTCC  
CGAAATGTAAACGCAGGATGACTAATCCAAAATCTACACGCCAACGGAGCCTCTCTATTC  
TTTATCTGCATGTACATTACATCGCCCCGAGGCTTGTACTACGGGTCATACATATATAAA  
AACACATGGTTCATCGGAGTAACTATCCTACTAGCAACAATACTAACCGCTTTCTTAGGA  
TATGTATTACCATGAGGACAGATATCACTATGAGGGGCAACAGTAATCACCAACCTACTT  
TCTGCCATCCCTTATATTGGAACCACACTGGTGACATGAATCTGAGGGGGCTTCTCTATC  
AGCAACTCAACACTAACACGATTCTTTCACATTCCACTTCATATTACCATTTGTAATCATC  
GCCCTCACAGCCATTCATATCCTATTTTTACATGAAACTGGATCAAACAACCCACTAGGA  
GTTAACTCAGACACAGACAAAATCCCATTCCACCATACTTCACACTAAAAGACATTTTA  
GGTATCGCACTAACCAATTGTCACCTTATTAAGTATAGTATTCTTCTTCCCAAACCTGTTA  
AGTGACCCAGAAACTTTTCAAAGCCAACCCCATATCCACCCAGTCCACATTAACCA  
GAATGATACTTCCTATTTGCTTACGCCATCCTACGATCAATCCCAAACAATTAGGAGGA  
GTAATAGCACTACTGGCATCCATCCTAGTACTAATAATTATACCTATAACCCACACCTCC  
AAACAACGAACAAAACCTTCAAACCCATATCACAAATCCTACTATGACTCCTGCTCACC  
ACCATCCTACTACTAACTTGAGTAGCAACAAAACAGTA-----  
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ND2

CATTGTAATTAGCATTATTACAGGAACTGTAATTACAGCCTCGAGCCACCAT--TGATTT  
TTCGCATGGATTGGGCTAGAGTTAAACACTCTAGCCGTAATTCGAATAATAGCAAAACCG  
CACCACCCACGGGCGACAGAGGCGACAACAAAATACTTCTTAACACAAGCCATAGCATCC  
TCCATACTTCTATTTGCTGCCACAACAAACGCACTTCATACGGGGTTATGGGAAATTAA  
TCCATGTCAATACCGACATCAACTATTATTATAACCGCGGCCCTTGTTGATAAAAATAGGG  
GCAGCACCATTCCATTTTGGAGTACCAGAAGTA-----  
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12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTATAATCGATGATCCACGAAGGACCTTACCACCCTTTG  
CCCAACAACCTATATACCGCCGTCGAAAGTTACCTTGTGAGAGAAAAAAGTGAACATA  
ATAGCTCAACACTAACACGTCAGGTCAAGGTGTAGTTAATGAGGTGGCCAGAGATGGGCT  
ACATTTCTACAAA-GGAAAAACGAACGGTCAAATGAAAACTAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACACTGCCCTGGGACG-----  
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16S

-----AAAAACATAGCCTTTAGCCCAACAAATATTGAAGGTAATGCCTGCCCA  
GTGAAGCCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCCTTGTAACATA  
TTTATAAACTGATCTTCTAGTCCAAAAGCTAGAATATACATATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCCCATTAACCAACTAATGGGTATTTTTAGTTGGGGCAACTTTG  
GAAAACAATTTAACTTCCAAAAA-GAT-AAAAACAACACACCAAGACCCACAAGTCAATC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACGATTAACAGT

*T. notorachius*

CytB

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---GCTATACACTACACAGCAGACATCTCTATAGCCTTTTTCATCAATTATCCACATCTGC  
CGAAATGTAAACGCCGGCTGACTAATCCAAAACCTTACATGCCAACGGAGCCTCATTATTC  
TTCATCTGTATATACATCCACATCGCCCCGAGGACTATACTACGGATCGTACATATACAAA  
AACACATGGTTTATCGGGGTGACCATCCTACTAGCAACAATAATAACTGCCTTCTTAGGG  
TATGTATTACCATGAGGACAAATATCGCTCTGAGGGGCTACAGTCATCACCAACCTACTA  
TCCGCCGTACCATACATTGGCACAACACTAGTCACATGAGTTTGAGGGGGTTTTCAATC  
AGCAATTCAACATTAACACGATTTTTTCACATTTCCACTTTATACTACCCTTTGTAATCATC  
GCCCTTACAGCCATCCACATCATCTTCTACACGAAACCGGATCAAACAACCCACTCGGA  
GTCAACTCAGACACGGACAAGATCCCCTTCCACCCATACTTCCACTAAAAGACATCCTG  
GGCATTGCATCACACTGACCACCTACTAACCATAAGTATTTTTCTTCCCAAACCTTCTA  
GGCGACCCAGAAAACCTTCTCAAAAAGCCAACCCAATATCCACCCCAATCCACATCAAACCA  
GAATGGTACTTCTTATTTGCCTACGCCATCCTACGATCAATCCCAAACAACCTAGGAGGT  
GTAATAGCACTACTAGCATCAATCCTAGTACTAATAATTATACCAATAACCCATACCTCA  
AAACAACGAACAAAAACCTTCCAACCAATATCCCAAACCTACTCTGACTCCTACTCACC  
ACCGTATTATTACTAACCTGAGTAGCAACAAAACAGTA-----  
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ND2

TATCGTAATTAGCATTATTACAGGAACCTTAAATCACAGCCTCAAGCCAACACACTGATTT  
TTCGCATGATTGGGCTTAGAATTAATAACCCCTAGCCATAATTCCAATAATAGCAAAACCC  
CACCACCCGCGGCAATAGAGGCAACAACAAGTACTTCCTAACACAAGCCATAGCATCC  
TCTATGCTACTATTTGCCGCCACAACAAATGCACTTCCACACCGGATTATGAGAAATTAAG  
TCCATGTCCCTACCAATATCAACCATTATCGTAACCCTAGCCCTGCTGATAAAAAATAGGA  
GCTGCACCATTCCACTTCTGAGTGCCAGAAGTGCTTCAAGGCGTTTCGCATAGAAATGGGG  
CTGGTCATTTTAACATGACAGAAAATAGCACCCATGGCCCTGATTCTCTCCTCTGAAGAG  
GTACTACACCAAAAAACACTCCTCTTCTCAGCCATACTTTCAATCATGCTTGGGGGGTGG  
GGGGGCTCAACCAACACAACCTGCGAAAACCTAATAGCCTTTTTCATCAATCTCCCATATC  
GGCTGAATGCTAATAACAGCCCTCATCTCTCAAAAAGTAACCGTAATCGCTCTTATTATT  
TACATCCTATTAACCACCCCAATATTTTTATCAATACTCTCAAACCTCATCAAAGACCATT  
AAGGATATTGGATCCACCTGAAACACGTCCCCACATGTAATATCAATCTCCATATTAATC  
CTCATATCGCTTTCAGGCATACCCCATTAACAGGGTTCATACCAAAATGAATTATCCTA  
AAAGAACTAACAAACCACAACCTTATAACCCCTGGCTGTAGTGGCAGCCATCCTATCTATC  
CTCAGTCTTTACTTCTACCTACACCTGTCTTACGCCACAACCATAACAATCCCGCCAAGC  
ACCACTACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAAACTCAAAACTCAAAGGACTTGACGGTGTCCCACA  
CACAACCTAGAGGAGCCTGTCTACAATCGATGATCCACGAAAGACCTCACCACCTTTTG  
CCCAACAGCCTATATACCGCCGTCGAAAGTTACCTTGTGAAAGAAAAAAGTGAACATA  
ATAGCTTAGCGCTAGTACGTCAGGTCAAGGTGTAGTAAATAAGGTGGCCAGAGATGGGCT  
ACATTTCCCTTTTAAAGAAAAACGAACGGTCAAATGAAAACTAACCGAAGGAGGATTTA  
GTAGTAAAACAGAATAAGAAAGTCTGCTTGAACAAACTGCCCTGGGACG-----  
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16S

-----AAAAACATAGCCTTTAGCTAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAAACCACTTTCAACGGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTTGT  
CCACTAATTATGGACCAGTATGAAAGGCCACATGAGATTCTAACTGTCTCTTGTAACCAA  
TTTATAAACTGATCTTCTAGTACAAAAGCTAGAATACTCCTATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAATCCCATTAACAACAACTAATGGGTATTTTTAGTTGGGGCACTTTG  
GAAAACAACCTTAACTTCCAAAAA-GAGGAAATTATCCCCTAAGACCTACAAGTCAAAC  
AAGACCCAGTAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAAGGTTTACGACCTCGATGTTGGATCAGGACACCCCAAGT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTC AACGATTAACAGT

*T. pusillus*

CytB

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---GCTATACACTACACAGCAGATATTTCTATAGCTTTTTCTTCAATCATTTCATATCTAC  
CGAAATGTAAACGCAGGTTGACTAATTCAAAACCTACACACAAACGGGGCCCTCCTTATTC  
TTCATTTGTATATATATCCACATCGCTCGAGGACTCTACTACGGCTCATACATATACAAA  
AACACATGGTTCATCGGAGTGACTATTCTACTAGCAACAATACTAACCGCCTTCCTAGGA  
TATGTTCTACCATGAGGACAAAATATCATTATGAGGAGCAACAGTAATTACAACTTACTT  
TCCGCCATCCCATACATCGGAACAACCTTAGTAACATGAATCTGAGGGGGCTTCTCTATC  
AGCAATTCAACATTAACACGATTCTTCACATTCCATTTTATATTACCATTTCGTAATCATT  
GCCCTCACAGCCGTCCACATCCTATTCTACACGAAACAGGATCCAACAATCCATTAGGA  
GTAAACTCAGACACAGACAAAATCCCATTCCACCCATACTTCACATTAAGACATTTTA  
GGGTTCACTAACAGTCATCACACTACTAACAATAGTGTTTTTTTTTCCCAAATCTACTA  
GGTGACCCAGAAACTTCTCAAAGGCAAACCCAATGTCAACCCCAATACACATCAAACCA  
GAGTGGTATTTCTATTTGCATACGCCATCCTACGATCAATTCCAAATAAACTAGGGGGT  
GTAATAGCACTACTAGCATCTATCCTAGTACTTACAATCATAACCAATAACTCATACTCC  
AAACAACGGACAAAGGCCTTCAAACCAGCATCACAAATCTTACTATGACTCCTACTTACC  
ACCGTACTCCTATTAACCTGAGTAGCAACCAAAACCAGTAGAACACCCATTTCATCATCCTA  
GGACAATAACATCAATAATA-----  
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ND2

ACTATTGTAACAAGCATTATTACAGACTTTAATCACACAGCCTCAAGCCAACACTGATTT  
TTCGGATGACTTGGCCTAGAATTAACACTTTAGCCGTAATCCCAATAATAGCGAAACCT  
CACAACCCGCGAGCTATAGAGGCAACAACAAAATATTTCTAACACAAGCCATAGCATCT  
TCCTTACTCTTATTAGCTGCCACAACAATGCACTTCATACGGGACTTTGAGAAATTA  
TCCATATCAATACCAGCATCAACTATCATTGTAACCATGGCCCTATTAATAAAAAATGGGG  
GCTGCACCATTCATTTCTGAGTACCAGAAGTA-----  
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-----GCCTTTTCATCTATCTCCCATATA



GGGTGAATACTGATAACAGCCCTAATCTCGCCAAAAGTAACTGTTATTGCTCTTATTATC  
TACATTCTATTGACAACCCCTATATTTTTATCAATACTTTCAAACCTCATCAAAAACAATC  
AAAGATATTGGATCTACCTGAAACGTGTCCCCACATATCATATCAATATCCATACTAATT  
CTTATATCACTTTCAGGTATACCTCCACTAACAGGATTTATACCAAAATGAATAATCCTA  
AAAGAATTGACAAACCACAACCTTCATCACACTAGCCACAACAGCAGCCATTCTATCAATT  
ATTAGCCTTTACTTTTACCTACACCTATCTTACGCCACAACCATAACAATACCACCAAGC  
ACCACCACAAT

12S

GGCCCGCCAGATTATTACAAGTAAAACTTAAAACTCAAAGGACTTGACGGTGTCCACACA  
CACAACCTAGAGGAGCCTGTCCCTTTAATCGATGATCCACGAAGGACCTTACCACCTTTAG  
CCCAACAATCTATATACCGCCGTCGGAAGTTACCTTGCGAGAGAAAAAAGTGAACGAA  
ATAGTCCAACACTAGCACGTGAGGTCAAGGTGTAGTTAATAAGGTGGACAGAGATGGGCT  
ACATTTCTATAAAAAGGAAAAACGAACGGTAAAATGAAAATCAACCAGAAGGAGGATTTA  
GTAGTAAAACAGGATCAGAAAAGCCTGCTTGAACACATTGCCCTGGGACG-----  
-----

16S

-----AAAAACATAGCCTTTAGCCAAAACAAGTATTAAGGTAATGCCTGCCCA  
GTGAAATCACTTTCACGCGCCGCGGTACCCTAACCGTGCAAAGGTAGCGTAATCATTGT  
CCACTAATTATGGACCTGTATGAAAGGCCACATGAGAATCTAACTGTCTCCTGTAACCAA  
TTTATAAAACCTGATCTTCCAGTTCAAAAAGCTAGAATATCACTATAAGACGAGAAGACCCT  
GTGAAGCTTAAAAAATCTCATTAACCAACTAATGAGTATTTTTAGTTGGGGCAACTTTG  
GAAAATAGTTCAACCTCCAAAAGAAAAA-A----CACCCACCAAGACCAACAAGTCAACC  
AAGACCCAGTATAACTGATAAATGAACCAAGTTACTCCAGGGATAACAGCGCAATCTTCT  
TCAAGAGCCCATATCAAAAAGAAGTTTACGACCTCGATGTTGGATCAGGACACCCAAAT  
GGCGCAGCCGCTATTAAGGTTTCGTTTGTTCACCGATTAACAGT

*T. schwartzi*

CytB

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---GCCATACTACACAGCAGACATTTCCCTGGCCTTCTCCTCAATCATTACATTTCC  
CGAAATGTAAACGCAGGTTGACTAATCCAAAACCTACACGCCAACGGAGCCTCTTTATTC  
TTTATCTGCATATACATTCACATCGCCCGAGGACTATACTACGGCTCATAATATATAAA  
AACACATGATTAATTGGAGTACCATTCTACTGGCGACAATAATAACTGCTTTCCCTAGGA  
TATGTGCTACCATGAGGACAAATATCACTATGAGGCGCAACAGTTATTACTAACCTGCCT  
TCTGCCATTCCCTACATTGGAACAACACTAGTAACGTGAATCTGAGGGGGATTCTCCATC  
AGCAATTCACACTAACACGATTCTTTCACATTTCACTTTATACTACCATTCGTAATTATT  
GCCCTCACAATAATCCACATTCTATTCTTACATGAAACCGGATCAAACAACCCACTAGGA  
ATTAATTTCTGACACAGACAAAATCCCCTTCCACCCGATTTTCACACAAAAGATATTTTA  
GGTTTTACTACTAACAAATGTCACCCTACTAGTTATAGTATTCTTCTCCCTAACCTACTA  
AGCGACCCAGAAAATTTCTCAAAGCTAACCCCATATCCACCCCAATCCACATCAAACCA  
GAATGATACTTCTATTTGCCTACGCCATCCTACGATCAATCCCAAACAACCTAGGGGGG  
GTAATAGCACTACTAGCATCCATTCTAGTACTAATAATTATACCAATAACCCACACCTCA  
AAACAACGATCAAAAACCTTCAAACCCGCATCACAATCTTACTATGACTTTTACTCACC  
ACCGTCTACTATTAACCTGAGTAGCAACAAAACAGTAGAACACCCATTCTATTATCCTA  
GGACAATTAACCTTCCCTAATC-----  
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ND2





## ACADEMIC VITA OF KELLY M. LIPP

### Education:

Bachelor of Science in Biology with Honors in Biology and Minor in Economics  
The Pennsylvania State University, University Park, PA

#### Thesis Title:

Fifteen new species of Cuban blindsnakes

#### Thesis Supervisor:

Dr. S. Blair Hedges, Professor of Biology

### Research Experience:

Biology Laboratory of S. Blair Hedges  
The Pennsylvania State University  
University Park, PA 16802

#### Research Assistant

September 2008- May 2012

- Worked as an undergraduate research assistant and dated Renaissance maps
- Isolated, purified, and sequenced nucleic acid from snake tissues
- Performed phylogenetic analyses on snakes within the genus *Typhlops*

### Work Experience:

The Pennsylvania State University  
University Park, PA 16802

#### Physiology and Histology Teaching Assistant

August 2011-May 2012

- Held office hours and review sessions
- Directed a 20-person laboratory section
- Composed and proctored laboratory and lecture examinations

#### Research Assistant

Summer 2009, 2010, 2011

- Worked in a molecular biology lab sequencing DNA
- Performed phylogenetic analyses

#### Science Camp Mentor

Summer 2011

- Led a medical and forensic science camp for children
- Lectured and demonstrated activities and experiments

PSU KnowHow Tutoring Center  
204 E Calder Way

State College, PA 16801

**Independent Tutor**

September 2010-August 2011

- Worked as an independently-contracted tutor
- Taught biology, chemistry, physics, and economics

**Community Service:**

Community Volunteers in Medicine

Summer 2010, 2011

- Volunteered as a dental assistant in a non-profit clinic
- Shadowed, charted, assisted, and recruited new patients

**Activities:**

**Globemed at Penn State**

August 2008-May 2012

- Campaigns Chair (2009-2010)

**Gamma Phi Beta Sorority**

September 2008-May 2012

- Alumni Relations Chair (2010-2011)
- Secretary (2009-2010)
- Community Service and Philanthropy Chair (2008-2009)

**Honors and Awards:**

- Dean's Scholarship (Penn State Schreyer Honors College)
- Academic Excellence Scholarship (Penn State Schreyer Honors College)
- Edward C. Hammond Jr. Memorial Scholarship (Eberly College of Science)
- Gayle Beyers Memorial Scholarship (Panhellenic Sorority Council)
- Alma Newlin Memorial Scholarship (Health and Welfare Foundation)
- National Merit Scholarship (Wyeth Pharmaceuticals)
- Dean's List (all semesters)
- The President's Freshman Award
- The President's Sparks Award
- The Evan Pugh Scholar Award