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Species Delimitation Predictions Using Mitochondrial and Nuclear DNA Sequences from the Heteromys pictus-spectabilis Species Complex

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ABSTRACT

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Heteromys pictus-spectabilis is a species complex within the subfamily Heteromyinae (Family: Heteromyidae) that is distributed along the western and southern Mexican coast and surrounding environments. Currently, the species complex is accepted as being 2 separate species (*H. pictus* and *H. spectabilis*), but this also renders *H. pictus* paraphyletic. Therefore, the species complex requires re-evaluation in order to resolve the paraphyly. Mitochondrial DNA sequences from a previously existing ~720 specimen database compiled by Victoria Vance were used in conjunction with new nuclear DNA sequences sequenced for the purpose of this study to generate multiple phylogenetic trees via the software programs RAxML, BEAST, and MrBayes to evaluate how different haplotype networks were related to each other. Using these molecular datasets in consideration with Kimura two-parameter values, time calibrations via BEAST, and the relative geographic locations of the haplotype networks, the results strongly indicate this species complex is composed of multiple cryptic species and potentially multiple genera. This was a preliminary exploration into this species complex however, and future research will be required to verify these findings.

Keywords: *Heteromys*, phylogeny, Bayesian, maximum likelihood, Mexico, species delimitation, cryptic species

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INTRODUCTION

A commonly investigated subject by evolutionary biologists is determining whether or not populations of closely-related taxa should be formally recognized as distinct species. There are several processes that can lead to speciation, such as mutation, genetic drift, natural selection, and vicariance (Dimmick et al. 1999). These processes can also act on lineages in different ways and to varying degrees; this is an important reason why delimiting species is such a continuously and intensely debated topic among researchers. Currently, a commonly accepted delimitation method is the General Lineage Concept, which defines species specifically "…as separately evolving metapopulation lineages…," with differences in traits like morphology and geographic distribution acting as secondary forms of evidence to support (or conversely disprove) the hypothesis (de Queiroz 2007). Therefore, using multiple lines of well-supported evidence (i.e. molecular and morphological data), one can determine which lineages/ species are most likely to be considered separate, unified, or even diverging at this current time.

Mexico is an important location from a biological perspective due to its recognition as a biodiversity "hotspot;" namely such hotspots contain a relatively large number of plant and animal species that are concentrated within a fairly small area (Newton 2007). Furthermore, many of these species are noted as being unique to these regions, so studying these areas and the relevant taxa will be beneficial towards conservation (Newton 2007). Increased human activity and altering land use practices in Mexico have negatively influenced species diversity (plants and animals—especially birds and mammals) of organisms that occur there (Ortega-Huerta and Kral 2007), so the sooner we can learn about these species before their natural distributions and numbers are changed, the better. In addition to these diversity hotspots, Mexico has a wide assortment of environments and habitats, including but not limited to (montane) forests,

scrubland, grasslands, wetlands, cloud forests, chaparral, mountains, and coastlands; naturally these different locations have diverse distributions of plant and animal species, such as mammals (Ortega-Huerta and Kral 2007). These habitats also differ because of precipitation, elevation, and plant density gradients, which contributes to even further variety of species distributions and geographic barriers (Newton 2007). Due to the wide assortment of habitats in Mexico, it would be reasonable to assume that separated populations of the same species would, over time, diverge from one another due to differences in local selective pressures and random genetic mutations. Given that rodents have relatively short generation times, they are an ideal model group to examine patterns of speciation, specifically in regions of high biodiversity and topographic/ geographical complexity such as Mexico.

The rodent family Heteromyidae (Order: Rodentia; pocket mice) consists of New World species that, like their sister group pocket gophers (family Geomyidae) possess external, fur-lined cheek pouches. Pocket mice are adapted to a large variety of environments. These include deserts, mountains, lowlands, and coastal regions (Hafner et al. 2007). Within Mexico, the 2 genera of interest (*Liomys* and *Heteromys*, e.g. "spiny pocket mice") constitute the subfamily Heteromyinae; the other two subfamilies within the family Heteromyidae are Dipodomyinae (e.g. "kangaroo rats") and Perognathinae (e.g. "pocket mice") (Hafner et al. 2007). Within the subfamily Heteromyinae, there are currently 5 recognized species of *Liomys* (*L. adspersus, L. irroratus, L. pictus, L. salvini, and L. spectabilis*) and 9 species of *Heteromys* (*H. anomalus, H. australis, H. desmarestianus, H. gaumeri, H. nelson, H. rubicolens, H. oasicus, H. oresterus,* and *H. teleus*) (Anderson et al. 2006). According to recent phylogenetic analysis and tree reconstructions, there is substantial evidence that the subfamily Heteromyinae is monophyletic, but also that the genus *Liomys* is paraphyletic relative to *Heteromys*. Within heteromyines, *L.*

salvini forms a basal branch relative to all of the other species, followed by a radiation of other species that led to what we currently recognize as the genus *Heteromys*, along with the remaining species of *Liomys* (Rogers and Vance 2005; Hafner et al. 2007). Although the subfamilial relationships are well-supported, relationships among species within the genus *Liomys* can be considered somewhat contentious due to paraphyly (see below—Rogers and Vance 2005; Vance 2006; Hafner et al. 2007). Vance (2006) proposed that the *Liomys pictus-spectabilis* complex is best described as composed of 2 monophyletic groups with 2 and 4 species respectively. This will need to be evaluated further as technology and knowledge of the fossil record and living populations improves.

With regard to *Liomys*, there are several pieces of evidence that indicate that this genus is paraphyletic relative to *Heteromys*. This is evidenced in the phylogenetic trees constructed by Anderson et al. (2006), Hafner et al. (2007), Rogers and Vance (2005), and Vance (2006). Therefore, it would be reasonable to conclude that *Liomys* may be in need of revision, and that the taxonomic status of certain populations should be reevaluated. This is because paraphyletic groups are not ideal from a phylogenetic perspective. There is also evidence (a molecular phylogeny based on the mitochondrial cytochrome *b* gene) that within *Liomys, L. pictus* is paraphyletic relative to *L. spectabilis* (Rogers and Vance 2005). If this is the case, then reorganization and reclassification within the subfamily Heteromyinae would be needed. Ultimately, we need to make sure that the taxonomy accurately reflects our genealogical estimates of this rodent subfamily to the best of our ability.

In the past, there were 4 subspecies proposed for *Liomys pictus* based on size/ bone morphology, coloration, and habitat preferences (Appendix 1). *Liomys pictus plantinarensis*, is the smallest and is generally restricted to coastal areas/ drainage points of SE Jalisco, W

Michoacan, the Rio Coahuayana, the Rio Tepalcatepec, and the Rio Balsas. A second subspecies is *L. pictus hispidus*, which is also relatively small but has a lighter pelage color; it is usually found along the northwestern Mexican coast from Sonora through Sinaloa, Nayarit, and Jalisco. The third subspecies is *L. pictus annectens*, which is generally the largest and is mostly restricted to the relatively higher elevations of the Sierra Madre del Sur, specifically the regions within Oaxaca and Guerrero. Finally, there is *L. pictus pictus*, which can be found in western Mexico, beginning along the coastlines of southern Nayarit and going further south into Jalisco, Colima, Michoacán, Guerrero, Oaxaca, and Chiapas, in addition to the Isthmus of Tehuantepec, central Chiapas, and Veracruz (Genoways 1973). There is some evidence to suggest that perhaps these specific populations should be re-evaluated in order to see if they should be considered as separate species; Vance (2006) concluded (based off of the mtDNA sequence data) that the *Liomys pictus-spectabilis* complex is better described as 2 groups and 6 species. These groups are *L. annectens* (encompasses *L. annectens* and *L. plantinarensis*) and *L. pictus* (encompasses *L. pictus, L. rostratus, L. spectabilis, and L. sonorana*).

The fact that the genus *Heteromys* is commonly accepted as separate from the genus *Liomys* in such a way that it makes *Liomys* paraphyletic to *Heteromys* raises some concerns about the current species definitions being applied here. When one considers the conclusions that *Heteromys* appears to have split from the rest of *Liomys* about 11.7 million years ago (MYA) while other members of *Liomys* such as *L. salvini* split from the rest of the branches 15.2 MYA, it seems inconsistent that *Heteromys* is nested fairly deeply in the heteromyine clade while other taxa are classified as *Liomys* (Hafner et al. 2007). Due to the nature of this particular phylogeny, it appears that further work is required to evaluate the relationships between different populations of *Heteromys* and *Liomys* in Mexico, and if necessary redefine the species and

subspecies to better reflect their true ancestry. It is for such reasons that many researchers have starting reclassifying what was considered *Liomys* into *Heteromys* to resolve the paraphyly at that level (Briones-Salas and Gonzalez 2016). For consistency with more current publications, *Liomys* specimens will be hereafter be referred to here as *Heteromys*.

The purpose of this research project is to evaluate, via nuclear DNA (nuDNA) and mitochondrial DNA (mtDNA) sequence data, the phylogenetic relationships among populations of the *Heteromys pictus-spectabilis* species complex. In other words, the mitochondrial clades of *H. pictus* (together with *H. spectabilis*), as identified by Rogers and Vance (2005) and Vance (2006) will be analyzed and compared using a series of informative nuclear genes. The central hypothesis to be examined here is that, based on past phylogenetic trees (Rogers and Vance 2005; Vance 2006) there are sufficient differences in the genes of interest such that at least some of the populations should be reclassified as distinct species.

MATERIALS AND METHODS

Taxon Sampling—Specimens were selected from a dataset of spiny pocket mice utilized in a previous research project (Vance 2006). This complete dataset consists of 715 spiny pocket mice from 82 localities encompassing the whole range of the *Heteromys pictus-spectabilis* species complex. A total of 193 *H. pictus-spectabilis* individuals were selected as a subset from this dataset for phylogenetic analysis, based on preliminary analyses of Cytochrome-*b* (*Cytb*) phylogenetic trees generated both by Vance (2006) and myself (Figure 1), and also based on representation of identical *Cytb* sequences checked in MEGA v.6.06 (Tamura et al. 2013). The preliminary tree was generated in RAxML v.8.1.15 (Stamatakis 2014).

Selection of this subset was also determined based on availability of DNA samples for sequencing and with the goal that each major clade and individual locality of the dataset

generated by Vance (2006) would be represented by at least 1 individual, though some haplotypes were represented by multiple samples (Appendix 1; Table 1). Samples from the type localities of all of the recognized subspecies (Genoways 1973), as well as from some type localities species or subspecies currently in synonomy also were included (current classifications in parentheses as determined by Genoways [1973]) as follows: *L. phaeurus* (*H. pictus pictus*), *L. pictus rostratus* (*H. pictus pictus*), *H. pictus esquinape* (*H. pictus hispidus*) and *L. sonorana* (*H. pictus hispidus*—Appendix 2). Additionally, outgroup taxa were selected based on degree of relatedness to the *H. pictus-spectabilis* complex. Outgroup taxa include *Heteromys irroratus* (sister group to the *H. pictus-spectabilis* complex according to Hafner et al. [2007] and Vance [2006]), as well as more distant outgroup taxa: *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *Dipodomys ordii*, *Perognathus longimembris, Chaetodipus formosus*, and *Neotoma mexicana*. The overall number of samples sequenced for nuDNA totaled out at 209 (Appendix 2).

Gene Isolation and Sequencing—Genes were purified and amplified from DNA which was extracted by Vance (2006). The genes of interest (Beta-Fibrinogen Intron 7, Fgb-I7; Fucosyltransferase 4, Fut4; Protein Kinase C Iota, PRKCI; Monocyte membrane glycoprotein, CD14; and Interphotoreceptor retinol-binding protein 3, IRBP) were amplified with specific primer sets (Table 2) via customized TD-PCR protocols (Figure 2), and then purified for cycle sequencing reactions and sample submission (Figure 3). Primer pairs were selected based on recommendations by Almendra (2015). Multiple TD-PCR (Touchdown Polymerase Chain Reaction) protocols were created specifically for this research in order to optimize the sequence product output of each gene.

The first PCR protocol used was performed with a Master Mix comprised of (per individual sample): 10.8 µL HPLC Water, 4.0 µL (5x Green GoTaq Flexi Buffer), 1.6 µL 25mM $MgCl_2$, 1 µL 10µM "Primer 1," 1 µL 10µM "Primer 2," 0.5 µL 10mM dNTPs, and 0.1 µL GoTaq Polymerase. The Master Mix was divided into aliquots (19 µL) based on the number of samples to be tested, and then 1 µL template DNA would be added to each reaction, for a total volume of 20 µL solution per sample. PCR products were checked for successful reactions via agarose gels containing either SYBR or Ethidium Bromide, and were analyzed under an ultraviolet light source and camera for the presence (or absence) of successfully amplified DNA bands.

For successfully amplified PCR samples with this protocol, products underwent Gene Clean reactions and were then cycle sequenced. These products were then cleaned using a Sephadex plate cleaning protocol. Samples were then submitted to the BYU DNA Sequencing Center. For Gene Cleaning, 100 microliters (µL) of ddH_2O were added to each successful sample. The samples would then be transferred to wells on a filter plate, and then run for 10 minutes in a vacuum pump (ideally running a pressure of 15 to 20 atm.) 100 µL of ddH_2O would then be added to each well again, and the vacuuming process repeated once more. Following that, 25 µL of ddH_2O would be added to each filtered well, and the plate would be moved to a nutator for 10 minutes. Products (about 25 µL) were then transferred to labeled microcapsules for long-term freezing and storage.

Samples that did not respond to multiple attempts of this previous PCR protocol were then subjected to an alternate protocol utilizing GE Healthcare Illustra™ PuReTaq™ Ready-to-Go™ PCR Beads. Reagent preparation was performed according to the provided instruction manual, and then samples would undergo the same thermocycler protocols as previous samples for that gene segment. Samples were checked using agarose gel (as above), and were gene

cleaned by adding 1-1.5 µL ExoSAP-IT solution per capsule. Products were amplified in a thermocycler using the "PCRBead" protocol (Figure 3). Samples would then be transferred to labeled vials and frozen until cycle sequencing could be performed.

For cycle sequencing, 2 µL of gene clean product were added to 7 µL of Master Mix (4.75 µL ddH_2O, 1.75 µL 5x Buffer, and 0.5 µL BigDye), along with 1 µL of primer (forward or reverse), producing a 10 µL solution per (individual primer) sample. A plate would then be run with the cycle sequencing protocol (Figure 3) in the thermocycler, and frozen if not cleaned immediately. Then, 15 µL ddH_2O was added to each well, whereupon the 25 µL of product was then filtered through a hydrated Sephadex plate in a centrifuge (top speed $3.6x10^3$ rpm) and onto a collection plate to isolate the desired gene product. Following 45 minutes of drying at 60°C in a SpeedVac, the collection plate was submitted to the BYU DNA Sequencing Center for the final steps. Sequencing results would be downloaded for further analysis.

Sequencing products (2 per gene per sample based on the 2 primers used) were checked for overall quality and paired up in Sequencher v.5.0.1 (Gene Codes Corporation). Sample pairs were examined by eye for quality and nucleotide "corrections" (for ambiguities or SNPs that the computer could not properly interpret) would be manually entered as appropriate.

Sequence Alignment—Gene read alignments and pairing of primer products were performed in Sequencher v.5.0.1 (Gene Codes Corporation). A high quality pair (80% or greater) of reads was used on each primer set to create a consensus "template" sequence, which would be initially added to subsequent primer pairings to both potentially clear up ambiguous nucleotide segments and, when necessary, assist with read alignments. Following the pairing of primer products and template sequence, the consensus sequences would be manually checked over for potential

sequence ambiguities or SNPs. For instance, points marked as "N" (e.g. unknown) by Sequencher were often a distinct nucleotide (e.g. A, T, G, or C) that either had a relatively weak (but clear) signal, or was receiving interference from another signal. These points would then be corrected to the most likely nucleotide. Sometimes the ambiguity was due to 2 signals of equal strength at that point. These were marked as heterogeneous points (symbolized as W/ A and T; R/ A and G; K/ T and G; and S/ C and G) if they occurred in stretches of generally high quality signals, or instead were marked as 1 of the 2 nucleotide signals if located in a stretch of low quality signals (the nucleotide selected would be based on the "control" sequence). Once the sequence was determined to be of appropriate quality, it would be saved as a FASTA file.

Finished sequences were aligned using MUSCLE v.3.8.31 (Edgar 2004) on the BYU Supercomputer. Following alignment, both ends of each sequence file were manually trimmed in Mesquite (Maddison and Maddison 2001) to remove sequence ends that extended significantly beyond the other sequences in either direction. Most of the outgroup sequences were additionally labeled ("-O") in the file names to more easily locate them in the resulting trees. Sequences were also checked and had names edited using Seaview 4 (Gouy et al. 2010).

Phylogenetic Tree Construction—Phylogenetic trees were primarily constructed using 3 phylogenetic programs in the BYU Supercomputer: Maximum Likelihood program RAxML v.8.1.15 (Stamatakis 2014), and Bayesian programs MrBayes v.3.2.6 (Huelsenbeck and Ronquist 2001; Ronquist and Huelsenbeck 2003), and programs from BEAST2 v.2.3.1 and v.2.4.48 (Bouckaert et al. 2014).

RAxML trees were constructed using the nucleotide substitution model GTRGAMMA (as input in the program). Once the initial trees were constructed, bootstrap analyses were

performed in 100-200 bootstrap chunks, and were fused once the total number of bootstraps equaled 1500. Using the fused bootstrap replicate trees file and the initial ML tree, we were able to obtain bootstrap support values for the nodes of the first tree.

Sequence sets were prepared for MrBayes by first uploading them into jModelTest v.2.1.10 (desktop) and v.2.1.3 (BYU Supercomputer) (Darriba et al. 2012; Guindon and Gascuel 2003). The reason for multiple versions was that the supercomputer version ran much faster, however it could not handle several of the larger datasets and would frequently crash. Checkpoints were not implemented in jModelTest until later versions, and so the latest version was downloaded onto the laptop such that these more complicated datasets could then be processed. The ideal models were chosen based off of the AIC criterion, however BIC models are included for those interested (Table 3).

With the MrBayes program for Bayesian MCMC phylogenetic analysis (Metropolis et al. 1953; Hastings 1970; Geyer 1991; Li 1996; Li et al. 2000; Rannala and Yang 1996; Mau and Newton 1997; Yang and Rannala 1997; Larget and Simon 1999; Mau et al. 1999; Newton et al. 1999), settings were implemented as such: lset nst=1, 2 (Kimura 1980; Hasegawa et al. 1984; Hasegawa et al. 1985), or 6 (Tavare 1986) (F81/JC69, HKY, and GTR respectively), rates= gamma, propinv, or invgamma (+G, +I, or +I+G), Ngen=120,000 (generations), samplefreq=1000, diagnfreq=5000, and Nchains=6. Selections were made based off of the jModelTest recommendations. Additionally, a 25% burn-in for the results was implemented. 120,000 generations would be added on at each checkpoint until the average standard deviation of split frequencies began to very closely approach 0.01, whereupon the input generation number would be decreased to 50,000. This would continue until the standard deviation consistently stayed below 0.01 for multiple diagnostics checks, at which point the tree generation would be

manually put to an end and the result files extracted for analysis to verify that no more generations would be needed. Namely, the potential scale reduction factors (PRSF) would be checked to make sure that they were all reasonably near the range value of 1.0.

BEAST2 trees were set up in BEAUti v.2.4.8 (Drummond et al. 2002; Drummond et al. 2012; Bouckaert et al. 2014). Substitution models were carried over from jModelTest selections for consistency, however the invariant site aspects of the models (+I) were removed, mainly affecting the *Cytb* and *IRBP* datasets. This was done because this aspect of the models resulted in the inability for the chains to converge; very often the chains would approach positive infinity under these circumstances. Clock model used for all trees was Relaxed Clock Lognormal (Drummond et al. 2006), with the tree prior Constant Coalescent Population (Kingman 1982). Once fossil dates for *Perognathus* and *Dipodomys* were added in as priors (with Normal distributions around the mean fossil date in millions of years (MYA)), all other settings would be left at their defaults for a single-chain test run of 1 hour (~2-3 million generations). Priors would be checked and adjusted according to program recommendations once the test run was complete, and these settings would be carried over to all chains (4 per individual gene) for the gene in question. These chains would then be run until all ESS values (checked periodically in Tracer v.1.6 [Rambaut et al. 2013]) for the combined run were greater than or equal to 200. The exception to this was the *CD14* nuclear gene, which had only 1 of the fossil outgroup specimens successfully sequenced and could not be fossil calibrated, and had 150 < ESS values < 200 for the statistics rate.variance and rate.coefficientOfVariation. For individual genes, values were checked every 2,000 generations.

Once the chains were complete and checked in Tracer, log and tree files were merged in LogCombiner (Ranbaut and Drummond 2017a) with 10% burn-in and at a factor such that the

resulting combined tree file would have ~8,000-10,000 trees. The combined tree file was then input into TreeAnnotator2 (heights=keep, limit=50) (Rambaut and Drummond 2017b) to generate the max clade credibility tree. Tree files and topologies would then be compared to each other once complete.

During the results analysis, it was noticed that the MrBayes trees of all of the genes bore similar topologies to their BEAST counterparts; however, the MrBayes support values were generally weaker at their equivalent nodes and frequently were part of polytomies. This in conjunction with the fact that both MrBayes and BEAST create phylogenetic trees via Bayesian methods led to the decision to not include the MrBayes trees for this analysis, except for in the species delimitation servers.

Haplotype Networks—One component of previous research (Vance 2006) was the delimitation of *Cytb* haplotype networks across geography (Templeton et al. 1995; Templeton 2004) to which *H. pictus-spectabilis* specimens belonged (Figure 4; Appendices 1-3; Vance 2006). Networks were checked for location and overlapping zones in comparison to phylogenetic tree products, in order to see how well networks (and representative samples) matched up to proximity and phylogenetic relationships. 17 separate networks were defined by Vance (Figure 4; Appendix 1; Appendix 2; Vance 2006), and all of the 17 networks were represented here by at least 1 sample for *Cytb*. 1 network (Network 1, e.g. "N1"), which is solely represented by ASK1776 both here and in Vance (2006), was not available for nuDNA sequencing.

Kimura two-parameter (K2P) values—Additionally, K2P values (Kimura 1980), which are a way to measure sequence variation, were calculated both within and between species for this

study (Table 4). Values (in percentage) were calculated in MEGA v. 6.06 (Tamura et al. 2013) based on *Cytb* sequence similarity within and between different species (*H. pictus*, *H. spectabilis*, and *H. irroratus*) and between Networks of *H. pictus-spectabilis*. Select network comparisons were made based on sister groups observed in the phylogenetic trees (Figures 5-14) and close geographic proximity (Figure 4). These values were used to help indicate how closely related (or divergent) the species, networks, and clades were to each other, as well as estimate the number of potential species present.

Species Delimitation—Individual gene trees were run through the bPTP (Zhang et al. 2013) and GMYC (Fujisawa and Barraclough 2013) servers to produce an estimate of the potential number of species within the *H. pictus-spectabilis* species complex (Table 5). The trees generated in MrBayes were used for the bPTP analysis, while the BEAST trees were used for the GMYC analysis.

The bPTP files were run for 300,000-500,000 generations as unrooted; other settings were left as default. Seed numbers used ranged from 200-203. Once run, the bPTP trees had their likelihood plot checked for convergence to verify that the run was completed. Groups delimited were looked at from the highest Bayesian supported solution, and the support values are described in Table 5. The GMYC analysis used the single threshold method; the number of ML entities (minus the outgroup entities), the confidence intervals (including the outgroup entities), and the threshold times are recorded in Table 5. As these trees are also time calibrated, the threshold time gives an estimate of *when* speciation within the *H. pictus-spectabilis* species complex began to occur based on each gene segment evaluated.

RESULTS

Sample/ Primer Success—A total of 209 rodent samples (*Heteromys* + outgroups) representing all networks as defined by Vance (2006) and localities of *Heteromys pictus* and *H. spectabilis* (plus outgroups) successfully responded to at least 1 (nuDNA) PCR protocol and subsequent sequencing reactions. Sample ASK 2050 was ultimately removed due to lack of amplification. That noted, the geographic Network and locality (N16; locality PCZ7 to which ASK2050 belonged were represented through other samples (Appendices 1-4.

Of the 5 primer sets initially selected for sequencing, 4 genes (*Bfib, PRKCI, IRBP,* and *CD14* were successfully amplified in at least 1 of the DNA samples. Even then, only some of the samples were successfully amplified for *CD14*. Multiple attempts were made to amplify *FUT4*, but all of the responsive samples had multiple bands or heavy streaking when examined in the agarose gel; no correction for this could be found. A more specific set of primers will need to be constructed to more closely examine *FUT4* in *Heteromys* samples in the future.

Additionally, although 2 PCR protocols are listed for the *CD14* samples, minor alterations had to be made to get successful amplification for a subset of the DNA samples; such modifications mostly revolved around increasing or decreasing the annealing step by about 1-2°C. Additionally, many specimens from Networks 16, 17, and a small number from Network 15 (Appendix 4 proved to be ultimately incompatible with the *CD14* primers used (e.g. CD14-6-F and CD14-4-R, and had to be excluded from the phylogenetic tree. This set of *CD14* products were similar to each other in nucleotide sequences and were of similar length to the desired product, but did not closely match to the rest of the rodent specimens and, furthermore, did not closely match any of BLAST's documented (online sequences. This demonstrates that a more specific set of *CD14* primers will be useful for more consistent gene amplification for *Heteromys*

in the future, but sequences for some samples can still be obtained using the current primer set with occasional minor modifications to the given protocols.

Phylogenetic Analyses of Individual Gene Trees— Phylogenetic trees (Figures 5 and 6) composed from 312 ingroup *Cytb* sequences were generated in RAxML 8.1.15 (Stamatakis 2014) (final Gamma-based Score= -13,439.449029) and BEAST 2.4.8 (Bouckaert et al. 2014). Both the ML and BI optimality criteria converged on essentially identical tree topologies (Figures 5 and 6), with the majority of clades being strongly supported by either the Bootstrap (BS) or Bayesian posterior probability (BP) values. *H. pictus* was recovered as paraphyletic relative to *H. spectabilis* (Figures 5 and 6). *H. pictus* samples from Chiapas, Oaxaca, and Veracruz (N2, N13, N9, N12, and N8—see Fig. 4) were recovered as a highly supported clade (BS = 86, BP > 0.95). Another clade with strong support (BS > 95 and BP > 0.95) was comprised of N3, N5, N7, and N10—which are all low elevation/ coastal localities in Michoacan and Oaxaca. A 3rd highly supported clade (BS = 91, BP > 0.95) of N6, N15, and N17 encompassed specimens from Colima, Jalisco, and Nayarit; this clade acted as sister group to *H. spectabilis*, but lacked strong branch support.

Of the 306 unique *H. pictus-spectabilis* haplotypes evaluated here for *Cytb*, roughly half were recovered as exclusive to their locality (Appendix 3; Appendix 4). Samples from different localities for the same haplotype were mostly observed in samples from Networks 10, 13, 15, 16, and 17 (Appendix 3; Appendix 4). That said, all samples representing each unique haplotype remained within the same network for their group, even if they were collected from different localities within the respective network.

The *Bfib* gene tree (Figure 7) (Final Gamma-based Score= -3603.586182) generated in RAxML8.1.15 (Stamatakis 2014) was less resolved than the *Cytb* tree, but some noticeable patterns are still present. Notably, N11 (*H. spectabilis*) is still well supported as a monophyletic group (BS=99), rendering *H. pictus* as paraphyletic relative to this species (Figure 7). Additionally, with the exception of 1 or 2 samples, N7 and 10 are maintained as closely related networks (BS=95), as are N13 and N2 (BS=94); there is also strong support for the monophyletic nature of N3 (BS=0.84), N5 (BS=87), and the separation of N4 from the rest of the tree (BS=100) (Figure 7).

For the *Bfib* tree (Figure 8) generated in BEAST (Bouckaert et al. 2014), there are also clades bearing nodal support that correspond to the *Cytb* trees (Figures 5 and 6). For instance, the general sister group relationships between N12 and N8 (BP $\geq$ 95), as well as N2 and N13 (BP = 0.92), N3 and N5 (BP $\geq$ 0.95), N10 and N7 (BP $\geq$ 0.95), N6 and N17 (BP $\geq$ 0.95), and N4 and N14 (BP $\geq$ 0.95), are still retained fairly well-supported here (Figure 8). However, there are a couple key differences from the *Cytb* trees. Notably, N9 is now part of a different clade, as it was part of the clade consisting of N2, N13, N9, N12, and N8 in the *Cytb* tree (Figure 6), but here it helps form a distinct clade with N3 and N5 (BP $\geq$ 0.95) (Figure 8) that includes many (but not all) of the samples from across southern and coastal Oaxaca (Figure 4). Another noticeable feature is that several of the networks are no longer strictly monophyletic; for instance, N7 has a sample (RCD4022) in a nearby but deeper branch of the tree from the rest of the network samples while still maintaining strong nodal support (BP $\geq$ 0.95) (Figure 8).

The *PRKCI* RAxML tree (Figure 9) (final Gamma-based Score= -4495.413395) has several features of note. For starters, the N2/N13 clade (*Cytb*: BS=100, BP $\geq$ 0.95; *Bfib*: BS=88, BP=0.92) and the N8/N12 clade (*Cytb*: BS=98, BP $\geq$ 0.95; *Bfib*: BS=78, BP $\geq$ 0.95) are present

here as they are in the *Cytb* and *Bfib* trees (Figures 5-8). Additionally, the N8 and N12 group in the *PRKCI* trees are well-supported here (BS=99; BP=0.80) (Figure 9). Along with that, the group formed of predicted clades N3/N5, N7, and N10 that is present in the *Cytb* trees (Figures 5 and 6; BS=0.98, BP $\geq$ 0.95) is also present here (Figure 9; BS < 0.70, BP=0.94), however support is a little weaker than before. Other networks showing strong nodal support as their own group in the RAxML tree are N9 (BS $\geq$ 95) and N16 (BS = 86). Despite the low number of strongly supported clades, the *H. spectabilis* clade (N11) still renders the *H. pictus* group as paraphyletic.

Meanwhile, the BEAST tree for *PRKCI* (Figure 10), arranges N2/N13, N8, and N12 as a bigger clade, still maintained with strong support (BP $\geq$ 0.95), as well as the N3, N5, N7, and N10 clade (BP $\geq$ 0.94) seen in the *Cytb* trees (Figures 5 and 6). The N6, N15, and N17 clade is retained as well (BP $\geq$ 0.95), but 3 of the N17 samples form their own separate group (BP $\geq$ 0.95) that forms a sister group to N16 as opposed to the rest of N17 (Figure 10). Once again, *H. spectabilis* (N11) has strong support as a monophyletic group (BP $\geq$ 0.95) and creates paraphyly for *H. pictus*, but in this circumstance, N9 is the sister group to N11 (Figure 10).

The *IRBP* trees also show similar patterns to the previous trees, further supporting certain network relationships. Examining the RAxML tree (Figure 11) (Final Gamma-based Score= -5704.061571) it can be observed that many of the clades seen in the *Cytb* trees (Figures 5 and 6) are here as well, such as N2/N13 (BS < 0.70), N12 (BS=86) and N8 (BS $\geq$ 95) (Basal Node BS= 0.87); also here is a clade for N6/N15/N17 (BS $\leq$ 70), albeit not strongly supported, and a clade for N3/N5, N7, and N10 (Basal Nodal BS = 83). *H. spectabilis* (N11) is once again monophyletic (BS $\geq$ 95) and renders *H. pictus* as paraphyletic here as well.

Regarding the BEAST (Bouckaert et al. 2014) *IRBP* tree (Figure 12), many of the same patterns can be seen as in the *Cytb* trees (Figures 5-6). N4 and N14 still form a well-supported clade together here (BP ≥ 0.95), as do the haplotype networks N12, N8, N2, N13, and N9 (BP ≥ 0.95); N3, N5, N7, and N10 (BP ≥ 0.95); and N6, N15 and N17 (BP = 0.86—Figure 12). Paraphyly of *H. pictus* relative to *H. spectabilis* (BP ≥ 0.95) was also recovered.

Both *CD14* trees (Figures 13 and 14) demonstrated significantly different topology from the previous trees. For instance, outgroup taxa *H. anomalus* and *P. longimembris* are within the *H. pictus-spectabilis* complex (Figures 13 and 14). However, some clades recovered in other gene trees were still apparent. The *H. spectabilis* clade (N11) remained a well-supported monophyletic clade (BS=100; BP ≥ 0.95) nested within *H. pictus*. Additionally, N8 and N12 remained sister groups as well, but there was interference from some of the outgroup specimens in the RAxML tree (Figure 13). Overall, problems associated with this gene render it mostly non-informative.

Kimura two-parameter Comparisons—K2P values were compared (based on *Cytb* sequences) and a wide range of values were observed (Table 4). Comparisons were mainly reserved for haplotype networks that were either geographically close or syntopic, as well as networks that were sister groups with strong nodal support in the *Cytb* trees (Figures 5-6). The overall K2P values observed between networks ranged from 1.9%—17.6% (Table 4), though ranges that were ≥ 10% were marked as noteworthy in the table. Many K2P values were ≥ 10% between networks representing different clades, even those that were geographically syntopic; this is particularly evident in cases such as N1/ N10, N16/ N17, N5/ N12, N5/ N13, N12/ N13, and N14/ N15 (Figure 4, Table 4).

Fossil Calibrations/ Species Delimitation Time Estimates—Fossil calibrations were performed for 4 genes in BEAST (Bouckaert et al. 2014): *Cytb, Bfib, IRBP,* and *PRKCI*. *CD14* was ultimately not time calibrated for several reasons—namely that only 1 or 2 of the time calibration specimen samples were successfully sequenced, and the incomplete nature of the haplotype network sampling for this gene led to unreliable and untrustworthy trees (Figures 13-14). Additionally, for unknown reasons the *Cytb* and *IRBP* BEAST (Bouckaert et al. 2014) trees were time-calibrated, but the scales produced along with the trees (Figures 6 and 10) do not seem to match up to the other trees. Interestingly however, the apparent error for the *Cytb* time scale was not present after being run through the GMYC (Fujisawa and Barraclough 2013) delimitation server. This program estimates that *Cytb* divergence within the complex began roughly 12.6 MYA (Table 5). For this reason, *Cytb* could then be used to compare possible divergence time periods alongside *Bfib* and *PRKCI*. However, the unknown error is still seen in the *IRBP* tree (Table 5), and so time calibration for this gene will be disregarded.

DISCUSSION

Phylogenetic Tree Comparisons—As a whole, the phylogenetic trees were fairly informative regarding relationships between the major clades recovered in the *H. pictus-spectabilis* complex. However, further extensive work is needed to address the poorly supported *CD14* trees (Figures 13-14). This can be accredited to several factors: All samples representing N16 failed to amplify, as well as many samples representing N15 and N17 (Appendices 3-4). This had a noticeable impact on the *CD14* tree topologies (Figures 13 and 14). For instance, outgroup taxa such as *H. irroratus* (AK3436) were nested within the *CD14* gene tree (Figures 13-14).

When comparing the RAxML trees to the BEAST trees, it is clear that the BEAST trees have stronger nodal support and fewer polytomies (Figures 5-14). Both *Cytb* trees (Figures 5 and

6) have strong overall nodal support and the haplotype networks are all recovered as monophyletic clades. The main differences between RAxML and BEAST are that the RAxML tree nests N6 within N17, and N15 is arranged as the sister group (Figure 5), while the BEAST tree (Figure 6) positions N6 as the sister group to N17 (N15 is the sister group once again to N6 and N17). With the *Bfib* trees, topology and nodal support are stronger in the BEAST tree (Figure 8) than the RAxML tree (Figure 7), the latter having more polytomies and some of the haplotype networks delimited with *Cytb* are not maintained. However, both *Bfib* gene trees strongly support the monophyletic nature of *H. spectabilis* (BS=99, BP $\geq$ 0.95) within *H. pictus*, and are mostly concordante with the relationships present in the *Cytb* trees. The 2 *PRKCI* gene trees (Figures 9-10) are similar, but once again the BEAST tree (Figure 9) has less ambiguities, and arranges N11 as sister group with N9 in the BEAST tree (Figure 10; BP=0.42), while the RAxML tree arranges N15 and N17 as the sister group to *H. spectabilis* (Figure 9; BS<70). However, the support values for both alternatives are weak, but N11 itself has a strong support value in the BEAST tree (BP $\geq$ 95). Finally, the *IRBP* gene trees (Figures 11-12) have topologies similar to the other gene trees (e.g. more highly resolved tree topology and nodal support on the BEAST tree than the RAxML tree), but the RAxML tree arranges *H. spectabilis* as the sister group as a polytomy of N6, N15+N17, N7, N10, N3, and N5 (Figure 11), while the BEAST tree recovers the sister group as N7, N10, N3, and N5 (Figure 12). All in all, the *Cytb* trees (Figures 5 and 6) have the strongest support and best defined topology, and apart from the *CD14* trees, the nuDNA trees still have some supporting information for the clades that the *Cytb* gene trees intimate. In summary, *H. spectabilis* is a distinct monophyletic group with strong nodal support, and *H. pictus* in its current state is paraphyletic and in need of reorganization. These are findings consistent with Vance (2006) and Rogers and Vance (2005).

Phylogeographic Patterns—When comparing the relationships between haplotype networks under the perspective of their relative geographic locations, a few patterns seen in the phylogenetic trees (Figures 5-14) begin to make sense. For instance, in most of the trees (Figures 5-14), N2/N13, as well as N12/N8 and N4/ N14 are very strongly supported sister groups that either geographically border each other or are closest to each other compared to other groups. Therefore, these relationships on the tree are expected.

When comparing the haplotype networks to each other, it is very likely that a lot of these patterns may be influenced by the geographic barriers present or in the past (Figure 4). According to Light et al. (2016), the likely influencing factors for species restricted to low elevations along Mexico's Pacific coast are the presence of geographic "filter barriers" (Figure 4) along the southern and western Pacific Mexican coast, such as: 1-the Sierra Barabampo-Río Fuerte (SBRF) filter barrier, 2-the Río Piaxtla, 3-the Laguna Grande, 4-the Laguna Agua Brava, 5-the sharp transition between lowland semideciduous forest and pine-oak forest, and 6-the deep Río Ameca canyon that splits Nayarit and Jalisco (See below).

Kimura two-parameter Values and Predicted Clades—According to Baker and Bradley (2006), the mean intraspecific K2P value in rodents was 1.5% (range=0—4.7%), while the average K2P distance between sister species was 7.3% (range=1.3—13%). The mean K2P distance within a rodent genus was 10.9% (range=4.9—16.9%). Along with this, Baker and Bradley (2001) regards mean K2P values > 13% to indicate different genera. The range of K2P distance values separating *H. irroratus* from *H. pictus* and *H. spectabilis* is 14.4—19.2% (Table 4). Within *H. pictus*, there are several haplotype network relationships whose K2P values exceed even 13% as

well, specifically N1/N10, N1/N17, N5/N12, N5/N13, N10/N16, N10/N17, N12/N13, N14/N15, and N16/N17 (Table 4). Of these networks, N1 and N10 geographically overlap in Michoacán, as well as N5 and N12 in Oaxaca, N5 and N13 in Oaxaca, N12 and N13 in Oaxaca, and N16 and N17 in Colima and Jalisco (Figure 4). Therefore, the deepest splits in the *Cytb* tree correspond to genetic distance values more typical of those evident between distinct rodent genera.

Also recorded in Table 4 are several K2P ranges between haplotype networks that are $\geq$ 7.3%: N2 and N9 (8.1—8.6%), along with N9 and N13 (7.9—9%) (Table 4). While N2 and N9 are not consistently arranged as sister groups across all gene trees, the K2P values separating the 2 were typical of sister taxa and support the hypothesis that these haplotype networks can be regarded as separate species; both networks occur in the Pacific drainage of western Oaxaca (Figure 4). Network 13, which often pairs with N2 in the gene trees (Figures 5-14), showed similar values regarding N9. Networks 8 and 12 show similar patterns with N7 and N10, namely that they are also consistently sister groups in the gene trees (Figures 5-14) and are geographically separated by multiple Mexican states (N8—Veracruz, N12—Chiapas and Oaxaca; N7—Guerrero, N10—Michoacán). As currently understood, N15 and N17 are restricted to southern Sinaloa and Colima, respectively, and are typically portrayed as sister groups (Figures 5-6, 9-13), however, their K2P distance values (6.1-7.9%) hint that they may also be separate species.

Network 1 was also compared to N16 (Table 4; K2P=2.1-2.9%), the 2nd closest network geographically to N1 (Network 1, when compared to its geographically proximate network, N10, has a K2P range of 14.5-14.7%), and while this is not considered unusually high on the species level, N1 is still consistently higher than sequence K2P values from within N16 (Table 4; K2P=0-1.1%). What seems most logical here, based on what is currently known, is that N1 is a

distinct haplotype network, but it has diverged relatively recently from N16. Additionally, N1 and N16 are sister groups in the Cytb trees forming a distinct clade (Figures 5-6) with strong nodal support (BS=100; BP≥0.95), which further supports this hypothesis. However, only 1 specimen (ASK1776) from N1 has currently been identified; in order to find further support for this hypothesis more samples will need to be collected for N1 from this region. Overall, the K2P values provide evidence supporting the idea that multiple cryptic species are present in the *H. pictus-spectabilis* species complex.

Fossil Calibrations and Divergence Predictions with Geographic Context—Based on the time calibrations from the fossil data and GMYC estimates, several predictions can be made about the divergence history within the *H. pictus-spectabilis* species complex (Figures 5, 7, and 9; Table 5). *Bfib* gives the most recent estimate, predicting a significant split in lineages roughly 6.3 MYA (Table 5). Meanwhile, *Cytb* and *PRKCI* place this split further back, at around 12.6 and 14.3 MYA respectively.

These lineage divergence predictions line up very well with divergence patterns of species from the same geographic areas. For instance, Light et al. (2016) analyzed 2 haplotype populations within the *Baiomys* genus (pygmy mice) that were split from each other by the Transvolcanic Belt—with *B. taylori* found in the northern half of Mexico and *B. musculus* found in the southern half, mostly along the coast. They predicted that this split occurred roughly 2.3-3.9 MYA, and that other undiagnosed lineages may be present here as well (Light et al. 2016). We see a couple similar splits in the *H. pictus-spectabilis* species complex between N8 and N12 (N8 is within the Transvolcanic Belt range) and between N15 with N16, N17, and N6 (Figure 4), and the predicted divergence between the *Baiomys* species (2.3-3.9 MYA) is also compatible

with when the divergences between these *H. pictus-spectabilis* networks may have happened as well.

However, what may actually be influencing these divergences more strongly than the mountains or geographic barriers themselves, according to Light et al. (2016), are geographic filter barriers that they found along the Pacific lowlands of southern and western Mexico. These filter barriers that have relevance to both the distributions of *Baiomys* populations they were studying, and to the *H. pictus-spectabilis* species complex: the SBRF filter-barrier (1), the Río Piaxtla (2), the Laguna Grande (3), the Laguna Agua Brava (4), the sharp transition between lowlands (5), and the deep Río Ameca canyon that splits Nayarit and Jalisco (6) (Light et al. 2016) (Figure 4). When compared to the locations of haplotype networks, several patterns become apparent. The SRBF filter-barrier is positioned right at the southern end of N4, and then Río Piaxtla is on the northern end of N14—giving strong indication that these are the barriers that played a role in N4 and N14's divergence (Figure 4). The Laguna Grande and the Laguna Agua Brava are on the southern end of N14, and these filter barriers may prevent dispersal between N14 and N15 (Figure 4). The Río Ameca canyon is mainly in the large gap around northern Jalisco between N15, N14, N6, N11, N16, and N17, and may have been responsible for their divergence. The filter barrier concerning the sharp transistion between lowland semideciduous forest and pine-oak forest is not yet clear. Other filter barriers may also be the explanation between the extreme K2P genetic distances between some of the more southern networks. For instance, this could explain N10 and N7, which are often sister groups in the phylogenetic trees yet are on opposite ends of Guerrero, or N8 and N12, where N8 is found in central Veracruz while N12 stays in southern Chiapas and Oaxaca (Figure 4).

Another similar divergence pattern due to geographic barriers is studied in Ortega et al. 2009, where they looked at *Musonycteris harrisoni* and closely related species, which are banana bats. Here, 2 haplotypes were separated by the Sierra Madre del Sur, and they additionally noted that many of Mexico's central mountain ranges started forming during the Oligocene and early Miocene period, which is roughly 25-20 MYA (Oretega et al. 2009), which is some time before the genes here predict divergences began in *H. pictus-spectabilis* (Table 5), but still reasonably within the time frame. Within the *H. pictus-spectabilis* species complex, similar patterns regarding haplotype splits can be noticed in the Sierra Madre de Sur between N2, N3, N7, N9, N13, and potentially N5 and N12 (Figure 4). These mountains may limit access between these networks, as N2/N13 and N3/N5 are often in completely different clades in the phylogenetic trees despite being geographic neighbors (Figures 5-12).

A recent study examined a species of Mexican lyresnake (*Trimorphodon biscutatus*) that is distributed across the Southwestern and Pacific drainage of Mexico (Devitt 2006). The clades they found seem to follow similar patterns to *H. pictus-spectabilis*, particularly around the filter barriers (1)-(6) (Devitt 2006) which helped delimit those snake populations. Harking back to Light et al. (2016), this adds further support to the hypothesis that these filter barriers are also separating (and allowing for independent divergence of) the haplotype networks within *H. pictus-spectabils.*

The number of predicted entities within *H. pictus-spectabilis* from these individual gene trees is also very high, ranging from roughly 6-32 separate entities identified within the *H. pictus-spectabilis* species complex alone (Table 5). It is likely that most of these are overestimates, as both bPTP and GMYC had a tendency of considering the haplotype networks as multiple species (Table 5), but there are still some patterns of note. Haplotype network 3, for

instance, was pretty regularly put in the same group as N5, which also often included N7 and N10 (Table 5). When combined with the context of K2P values based on *Cytb* sequences, N3 and N5 are predicted to indeed form their own clade, but N7 and N10 appear to each be 2 separate clades, for a total of 3 closely related clades in that context (N3/N5, N7, N10) (Table 5). Network 8 was also almost always paired up with N12, as well as N2 frequently pairing up with N13 (Table 5)—yet the K2P values (Table 3) support 3 separate clades here too (N2 and N13, N8, and N12). Network 6 also fairly regularly was grouped together with Network 17 for their own clade, which the K2P values agreed with here (N6/N17: 1.9-3%—Table 4). Meanwhile, Network 9 was not consistently grouped with another network and could be considered its own species by both the servers and the K2P values (Tables 4 and 5), so N9's relationship to the other *H. pictus-spectabilis* haplotype networks will most certainly require further research. Networks 4 and 14 were almost consistently arranged to form their own clade, and the K2P values agree on this (N4/N14:2.9-3.5%—Table 4). The remaining haplotype networks (N11-*H. spectabilis*, N15, and N16) had K2P values indicating that they were their own clades (Table 3), the delimitation servers gave mixed results in regards to those predictions (Table 5). The K2P values could support recognition of, at most, 12 separate clades for the *H. pictus-spectabilis* species complex (N1/N16, N2/N13, N3/N5, N4/N14, N6/N17, N7, N8, N9, N10, N11/ *H. spectabilis*, N12, and N15) (Table 4). Whether or not this particular number is an overestimate, it is at least a starting point for further investigation.

Taxonomic Recommendations—Formal taxonomic changes within the *H. pictus-spectabilis* complex will require additional research and incorporation of morphological data. However, some recommendations can be made based on the fact that voucher specimens were sequenced

from the type localities of all recognized subspecies (*H. p. annectens*, *H. p. pictus*, *H. p. plantinarensis*, and *H. p. hispidus*) as well as several names currently in synonymy (Appendix 1). Spiny pocket mice collected from the type locality of *H. pictus* (San Sebastián, Jalisco, as described by Thomas in 1893) corresponds to N15, which also includes southern Nayarit populations that cover the type locality of *H. p. hispidus* (Allen 1897). Therefore, the name *H. pictus* should be restricted to these populations and the name *hispidus* should be placed in synonomy under *H. pictus*. Network 13 includes specimens of the type locality for *H. p. annectens*. *Heteromys p. plantinarensis* was described from Plantanar, Jalisco by Merriam (1902) and specimens sequenced from that locality correspond to N16. The lone specimen representing N1 from south-coastal Michoacán forms the sister group to N16 in the gene *Cytb* and *Bfib* gene trees. Therefore, *H. plantinarensis* should be recognized as a species-level clade and represents specimens from Colima and Michoacán.

Liomys sonorana was described from Alamos, Sonora, by Merriam (1902). Later on, Allen (1906) described *L. pictus escuinapae* from Esquinapa, Sonoloa. Both taxa were synonymized by Genoways (1973) under the name *H. pictus hispidus*. Specimens sequenced from the type localities of *sonorana* and *escuinapae* correspond to N4 and N14, respectively and together represent a distinct species-level clade. Because the name *sonorana* has priority, Sonoran and Sinloan specimens should be referred to as *Heteromys sonorana*. Networks 3 and 5, both from Oaxaca's Pacific Coast, are arranged as sister taxa based on *Cytb, Bfib,* and *IRBP* sequence data. Specimens representing N3 correspond to the type locality of *Liomys phaeurus*, as described by Merriam (1902) and then synonymized by Genoways (1973) under *Heteromys pictus pictus*. These 2 networks were delimited as a separate, species-level clade. According to the molecular data presented here, the available name for this clade is *Heteromys phaeurus*.

Molecular data also are available from the vicinity of Ometepec, Guerrero, the type locality of *Liomys pictus rostratus* (Merriam, 1902). Specimens sequenced from this locality correspond to N7. Spiny pocket mice from this locality are delimited as their own species-level clade and form the sister group to N10 from southern Michoacán based on *Cytb, Bfib,* and *IRBP* data. However, N10 is likely its own, separate, species-level entity. Therefore, spiny pocket mice from near Ometepec, Guerrero, should be classified as *Heteromys rostratus*.

To summarize, there are 4 available names that can be applied to currently unrecognized species-level lineages recovered by individual gene trees and species delimitation methods in this study: *Heteromys annectens, H. phaeurus, H. planinarensis,* and *H. sonorana.* Additionally, N8, N9, N11, and N12 each represent lineages that likely are distinct at the species level. However, whether any other names available in synonymy under *H. pictus* could be applied to these clades awaits future datasets collected from additional type localities.

Overall, there is strong molecular evidence supporting the hypothesis that multiple species (3+) are present within the *H. pictus-spectabilis* species complex apart from those previously defined, with geographic evidence to further support it, but more research will be needed to better investigate how these networks are all related to each other and which species they potentially are.

TABLES

Table 1(a)-Identical *Cytb* sequences between samples (Part 1)

Cytb Selection Tree Samples		Identical *Cytb* Sequences (continues on next page)			
Sample Name	Network	Sample Name	Network	Sample Name	Network
(*H. spectabilis*) AK5884*	N11	(*H. spectabilis*) ASK1653	N11		
(*H. pictus*) AK5605	N15	ASK1664	N15		
ASK1640	N16	ASK1641	N16	ASK1646	N16
ASK1661*	N15	ASK1725	N15		
ASK1714*	N15	ASK1731	N15		
ASK1735	N16	ASK1844	N16		
ASK1740*	N16	ASK1837	N16		
ASK1818*	N16	ASK1845	N16		
ASK1831*	N16	ASK1832	N16		
ASK1834*	N16	ASK1838	N16	ASK1956	N16
ASK1867*	N17	ASK1871	N17	ASK1983	N17
ASK1868	N17	ASK2146	N17	ASK2148	N17
ASK1934	N17	ASK1935	N17		
ASK1961	N17	ASK1975	N17		
ASK1963	N17	ASK1967	N17	ASK1978	N17
ASK1964	N17	ASK1966	N17		
ASK1965	N17	ASK1980	N17	ASK1981	N17
ASK2076	N17	ASK2088	N17	ASK2090	N17
ASK2106	N17	ASK2126	N17		
DSR7538*	N13	DSR7543	N13		
DSR7460	N3	DSR7467	N3	DSR7468	N3
RCD4008*	N7	RCD4012	N7		

*=*Cytb* Data only (not available for nuDNA sequencing for this study)

Table 1(b)-Identical *Cytb* sequences between samples (Part 2)

Cytb Selection Tree Samples		Identical *Cytb* Sequences (con't)			
Sample Name	Network	Sample Name	Network	Sample Name	Network
(*H. spectabilis*) AK5884*	N11				
(*H. pictus*) AK5605	N15				
ASK1640	N16	ASK1880	N16		
ASK1661*	N15				
ASK1714*	N15				
ASK1735	N16				
ASK1740*	N16				
ASK1818*	N16				
ASK1831*	N16				
ASK1834*	N16				
ASK1867*	N17				
ASK1868	N17				
ASK1934	N17				
ASK1961	N17				
ASK1963	N17	ASK1979	N17	ASK1982	N17
ASK1964	N17				
ASK1965	N17				
ASK2076	N17	ASK2091	N17		
ASK2106	N17				
DSR7538*	N13				
DSR7460	N3				
RCD4008*	N7				

*=*Cytb* Data only (not available for nuDNA sequencing for this study)

Table 2—A list of primers tested and used for this analysis in order of relative sequencing success and how phylogenetically informative they were for this study. *CD14* was partially successful. *FUT4* was completely unsuccessful in regards to sequencing, and so was rejected for analysis.

DNA Type	Gene	Primer Set(s)	Sequences (as described by Almendra(2015) and Jansa et al. (2009))
Mitochondrial (mtDNA)	Cytochrome b/ *Cytb*	F1/ H15195 and L14724/ MVZ16	TGAGGACARATATCHTTYTGRGG / AAACTGCAGCCCCTCAGAATGATATTTGTCCTCA and CGAAGCTTGATATGAAAAACCATCGTTG / ATYAAACCAGARTGATAYTTCCTATTT
Nuclear (nuDNA)	Beta-Fibrinogen/ *Bfib*	B17/ B571F	ACCCCAGTAGTATCTGCCGTTTGGAT / CGTAGCCTTGTGCTTGCAATAG
Nuclear (nuDNA)	Protein Kinase C Iota/ *PRKCI*	PRKCIF/ PRKCIR	AAACAGATCGCATTTATGCAAT / TGTCTGTACCCAGTCAATATC
Nuclear (nuDNA)	Interphotoreceptor retinol-binding protein 3/ *IRBP*	IRBPA/ IRBPB	ATGGCCAAGGTCCTCTTGGATAACTACTGCTT / CGCAGGTCCATGATGAGGTGCTCCGTGTCCTG
Nuclear (nuDNA)	Monocyte membrane glycoprotein/ *CD14*	mCD14-6-F/ mCD14-4-R	AACTGACTCTTGAAAACTTCG / TTACGCAGCGCTAAAACTTG
Nuclear (nuDNA)	Fucosyltransferase4 / *Fut4*	mFUT4-3-F/ mFUT4-6-R	GTCCTACCGGACCGACTCGG / TGGCCTTATCGCTGGAACCAG

Table 3-Substitution Models for Genes as Determined in jModelTest2. AIC Models and BEAST Models were Used for this Study.

Gene	AIC	BIC	Model for BEAST
Cytb	HKY + I + G	HKY + I + G	HKY + G
Bfib	GTR + G	HKY	GTR + G
PRKCI	HKY + G	HKY + G	HKY + G
IRBP	HKY + I + G	HKY + G	HKY + G
CD14	GTR + G	HKY + G	GTR + G

Table 4(a)-Selected Kimura two-parameter (K2P) comparisons (%) of Cytochrome-*b* sequences across select *Heteromys* species and haplotype networks within *H. pictus* (Part 1)

Species	Kimura 2-parameter within-group values (%)		*H. irroratus*	*H. spectabilis* (N11)						
Heteromys irroratus	4.5									
Heteromys spectabilis (N11)	0.1-3.1		17.0-17.4*		*H. pictus*					
Heteromys pictus	Total	0-17.7*	14.4-19.2*	9.9-17.4*	N1 (ASK 1776)	N2	N3	N4	N5	N6	N7
	N1 (ASK1776)										
	N2	0-0.01									
	N3	0.4-0.7									
	N4	0.1-0.4									
	N5	0.1-1.1					3.2-4				
	N6	0.2-1.2									
	N7	0.1-0.5									
	N8	0.1-0.5									
	N9	0.1-1.6				8.1-8.6					
	N10	0-0.4			14.5-14.7*						6.2-7
	N12	0.2-1.3							14.3-15.0*		
	N13	0.1-1				2.4-3.2			14.7-15.6*		
	N14	0.1-1.5						2.9-3.5			
	N15	0.1-1.5									
	N16	0-1.1			2.1-2.9						
	N17	0-1.4			15.4-16.4*					1.9-3	

Table 4(b)-Selected Kimura two-parameter (K2P) comparisons (%) of Cytochrome-b sequences across select *Heteromys* species and haplotype networks within H. pictus (Part 2)

H. pictus (con't)

	N8	N9	N10	N12	N13	N14	N15	N16
N1 (ASK 1776)								
N2								
N3								
N4								
N5								
N6								
N7								
N8								
N9								
N10								
N12	6.8-7.7							
N13		7.9-9		9.3-10.6*				
N14								
N15						12.9-14.6*		
N16			15.3-16.3*					
N17			10.9-12.3*				6.1- 7.9	15.7-17.6*

Table 5- Species delimitation support values within the *H. pictus-spectabilis* species complex from the bPTP online servers (Zhang et al. 2013) and predicted entities and threshold times from the GMYC servers (Fujisawa and Barraclough 2013) for each gene/ gene set. MrBayes trees were used for the bPTP calculations, and BEAST trees were used for GMYC calculations. CD14 was excluded due to low sequencing success and poorly supported trees.

Haplotype Network	Gene							
	Cytb		*Bfib*		*PRKCI*		*IRBP*	
	bPTP	GMYC	bPTP	GMYC	bPTP	GMYC	bPTP	GMYC
N1	0.989		N/A	N/A	N/A	N/A	N/A	N/A
N2	0.957		(+N8 +N12 +N13) 0.661		(+N13(6)) 0.304 (1) 0.483 (1)		(+N8 +N9 +N12 +N13) 0.712	
N3	0.992		(+N5+N9) 0.830		(+N5+N7+ N10+N11) 0.480		(+N5+N6 +N7+N10 +N15+N17) 0.600	
N4	0.996		0.906		(+N14) 0.597		(+N14) 0.873	
N5	0.982		0.830		0.480		0.600	
N6	(+N17) 0.897		(+ N17 +N15(1)) 0.906		(+N17(-2) +N15) 0.383		0.600	
N7	0.959		(+N10) 0.836 (1) 0.800 (Rest)		0.480		0.600	
N8	0.950		0.661		(+N12) 0.738		0.712	
N9	0.948		0.830		0.597		0.712	
N10	0.949		(+N7 (-1)) 0.836		0.480		0.600	
N11 (*H. spectabilis)*	1.000 (DSR7707) 0.999 (AK5884 + AK5885)		0.789		0.480		0.730	
N12	0.956		0.661		0.738		0.712	
N13	0.997		0.661		0.329 (2) 0.287 (4) 0.304 (Rest)		0.712	
N14	0.488		0.698 (2) 0.687 (Rest)		0.597		0.873	
N15	0.995		0.906 (1) 0.727 (Rest)		0.383		0.600	
N16	0.944		0.880 (2) 0.803 (Rest)		0.652		0.929 (ASK1891) 0.545 (Rest)	
N17	0.897		0.906		0.659 (1) 0.584 (1) 0.383 (Rest)		0.600	
Number of entities predicted	17 (26-32, including outgroups)	32 (26-52, including outgroups	12 (10-33, including outgroups)	21 (20-42, including outgroups)	15 (9-37, including outgroups)	12 (21-22, including outgroups)	6 (7-26, including outgroups)	7 (12-22, including outgroups
Threshold Time-GMYC		12.6168 MYA		6.285355 MYA		14.28631 MYA		471.4281 ???

SUMMARY OF FIGURES

Figure 1—Maximum-likelihood preliminary phylogenetic hypothesis (final Gamma-based Likelihood= -111,113.249112) generated in RAxML 8.1.15 (Stamatakis 2014) for *Heteromys pictus-spectabilis*. Based on non-redundant *Cytb* haplotype sequence data (N=316) using the GTR+G model of evolution and rooted with *H. irroratus* and other outgroup taxa for purposes of selecting samples for nuDNA sequencing. Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1.

Figure 2—Touchdown PCR (TD-PCR) protocols used for nuclear genes (°C).

Figure 3—Gene clean protocols (for Bead PCR samples) and Cycle Sequencing protocols for all samples.

Figure 4—Map of Mexico detailing sampling sites and haplotype networks (*Cytb*) of *H. pictus-spectabilis* as reported by Vance (2006). Black dots (●) represent *H. pictus*, while the diamond mark (◊) represents *H. spectabilis*.  =Network boundaries. Networks are labeled by name (N2, etc.). Letters (A, B, C, D) and dotted boxes () represent geographic barriers of note: A=Sierra Madre Occidental, B= Neovolcanic/ Transvolcanic Belt, C=Sierra Madre del Sur, and D=Isthmus of Tehauntepec. Relevant filter barriers are represented by G#: G1-the Sierra Barabampo-Río Fuerte (SRBF) filter barrier, G2-the Río Piaxtla, G3-the Laguna Grande, G4-the Laguna Agua Brava, G5-the sharp transition between lowland semideciduous forest and pine-oak forest, and G6-the deep Río Ameca canyon that splits Nayarit and Jalisco (Light et al. 2016).

Figure 5—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -13,439.449029) for *Heteromys pictus* and *H. spectabilis* based on *Cytb* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014). Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *Dipodomys ordii*, *Chaetodipus formosus*, and *Perognathus longimembris.* Triangle size indicates the relative number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by ML rapid Bootstrap (BS) replicates (1,500 iterations) and BS proportions (BP—above nodes). BS values for terminal nodes (samples within a single locality) are not shown.

Figure 6—Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *Cytb* sequence data utilizing the HKY+G model in BEAST (Bouckaert et al. 2014). All ESS values for parameters in combined chains (checked in Tracer) are $\geq$ 200. Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris.* Triangle size indicates the relative number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by Bayesian posterior probability values (pp values);

black squares (■) at nodes indicate pp values ≥ 0.95. Pp values for terminal nodes (samples within a single locality) are not shown.

Figure 7—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -3603.586182) for *H. pictus* and *H. spectabilis* based on *Bfib* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014). Outgroup specimens used to root the tree include H. *irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris.* Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by ML rapid Bootstrap (BS) replicates (1,500 iterations) and BS proportions (BP—above nodes). BS values for terminal nodes (samples within a single locality) are not shown.

Figure 8— Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *Bfib* sequence data utilizing the GTR+G model in BEAST (Bouckaert et al. 2014). All ESS values for parameters in combined chains (checked in Tracer) are ≥ 200. Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris.* Time calibration scale is in millions of years (MYA). Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by Bayesian posterior probability values (pp values); black squares (■) at nodes indicate pp values ≥ 0.95. Pp values for terminal nodes (samples within a single locality) are not shown.

Figure 9—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -4495.413395) for *H. pictus* and *H. spectabilis* based on *PRKCI* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014). Outgroup specimens used to root the tree include *H. irroratus, H. anomalus, H. desmarestianus, H. nelsoni, D. ordii, C. formosus, and P. longimembris,* and *Neotoma sp.* Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by ML rapid Bootstrap (BS) replicates (1,500 iterations) and BS proportions (BP—above nodes). BS values for terminal nodes (samples within a single locality) are not shown.

Figure 10—Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *PRKCI* sequence data utilizing the HKY+G model in BEAST (Bouckaert et al. 2014). All ESS values for parameters in combined chains (checked in Tracer) are ≥ 200. Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris*, and *Neotoma sp.* Time calibration scale is in millions of years (MYA). Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by Bayesian posterior probability values (pp values); black squares (■) at nodes

indicate pp values ≥ 0.95. Pp values for terminal nodes (samples within a single locality) are not shown.

Figure 11—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -5704.061571) for *H. pictus* and *H. spectabilis* based on *IRBP* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014). Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris*, and *Neotoma sp.* Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by ML rapid Bootstrap (BS) replicates (1,500 iterations) and BS proportions (BP—above nodes). BS values for terminal nodes (samples within a single locality) are not shown.

Figure 12—Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *IRBP* sequence data utilizing the HKY+G model in BEAST (Bouckaert et al. 2014). All ESS values for parameters in combined chains (checked in Tracer) are ≥ 199. Outgroup specimens used to root the tree include *H. irroratus*, *H. anomalus*, *H. desmarestianus*, *H. nelsoni*, *D. ordii*, *C. formosus*, and *P. longimembris*, and *Neotoma sp.* Time calibration scale is in millions of years (MYA). Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by Bayesian posterior probability values (pp values); black squares (■) at nodes indicate pp values ≥ 0.95. Pp values for terminal nodes (samples within a single locality) are not shown.

Figure 13— Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -3643.54739) for *H. pictus* and *H. spectabilis* based on *CD14* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014). Outgroup specimens used to root the tree include *H. anomalus*, *H. desmarestianus*, *C. formosus*, and *P. longimembris*, and *Neotoma sp.* Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by ML rapid Bootstrap (BS) replicates (1,500 iterations) and BS proportions (BP—above nodes). BS values for terminal nodes (samples within a single locality) are not shown.

Figure 14— Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *CD14* sequence data utilizing the GTR+G model in BEAST (Bouckaert et al. 2014). All ESS values for parameters in combined chains (checked in Tracer) are ≥ 190. Outgroup specimens used to root the tree include *H. anomalus*, *H. desmarestianus*, *C. formosus*, and *P. longimembris*, and *Neotoma sp*. Triangle size indicates the number of samples representing each terminal. Numbers to the right of terminals (i.e. N2, etc) are haplotype network designations (Templeton 2004) as developed by Vance (2006); specific localities designations are provided in Appendix 1. Nodal support is represented by Bayesian posterior probability values (pp values); black squares (■) at nodes indicate pp values ≥ 0.95. Pp values for terminal nodes (samples within a single locality) are not shown.

FIGURES

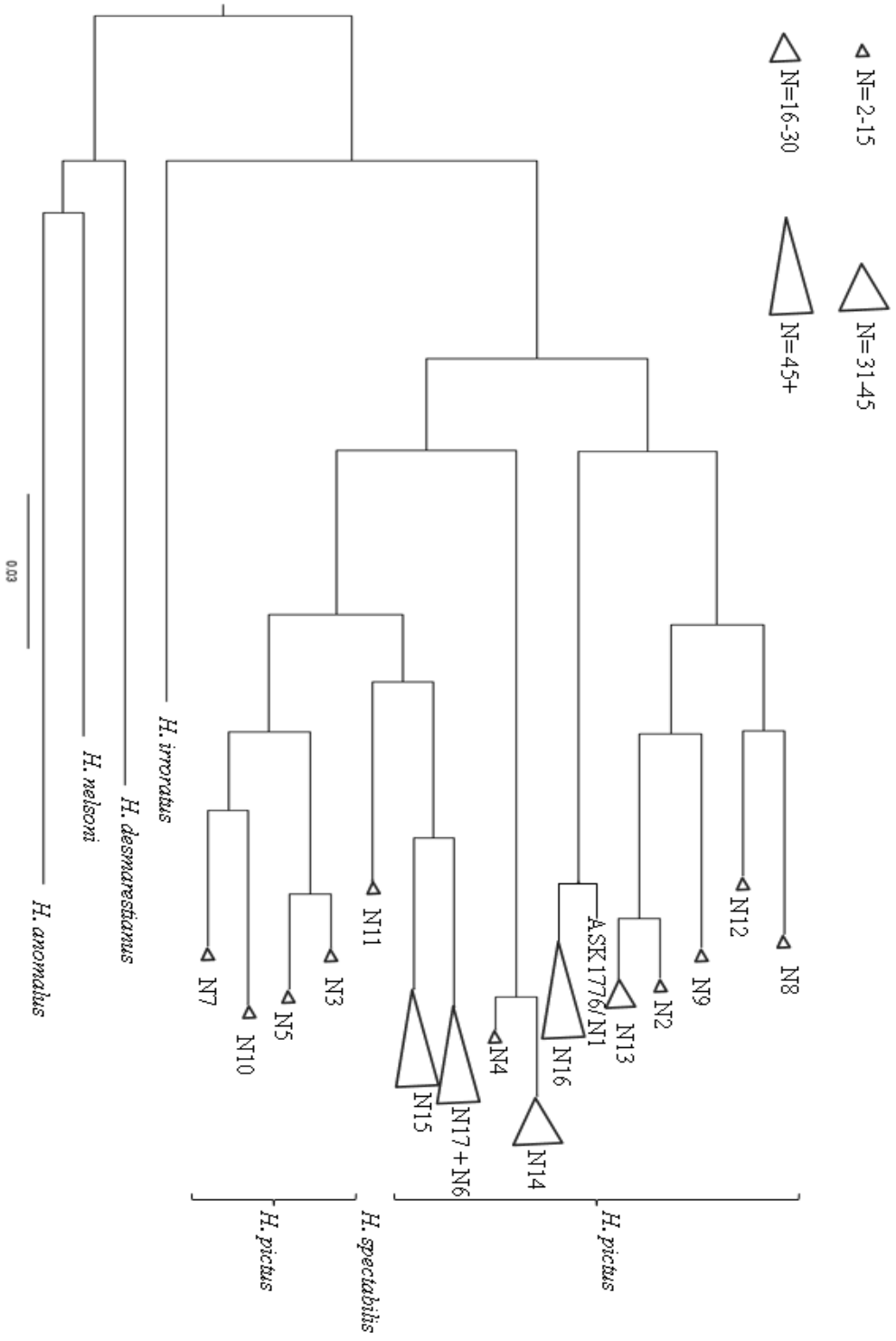
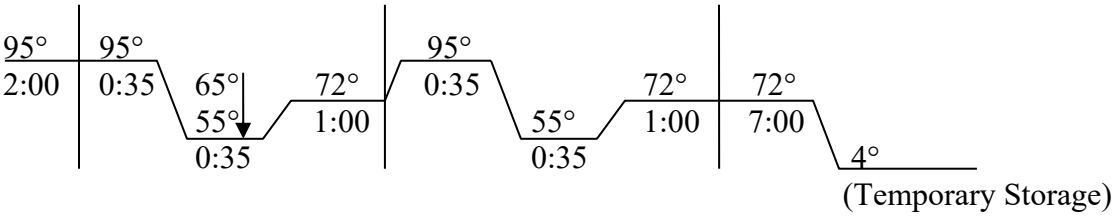


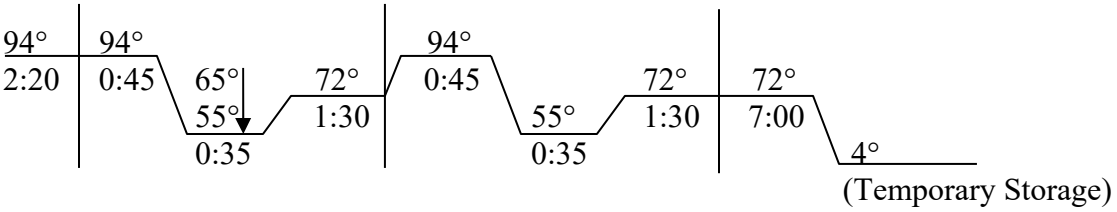
Figure 1—Maximum-likelihood preliminary phylogenetic hypothesis (final Gamma-based Likelihood= -111,113.249112) generated in RAxML 8.1.15 (Stamatakis 2014) for *Heteromys pictus-spectabilis*.

Bfib/ IRBP



(x10 cycles) (x25 cycles)

PRKCI/ Bfib (alt)



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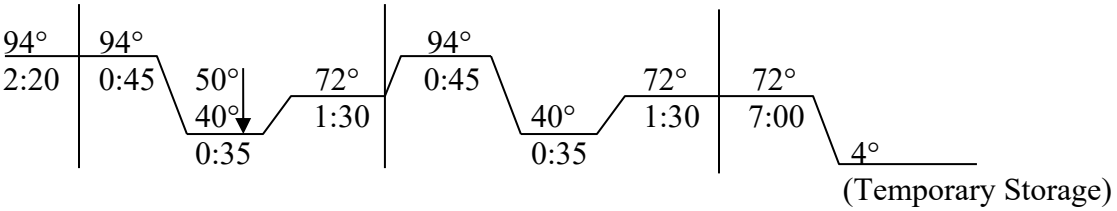
CD14



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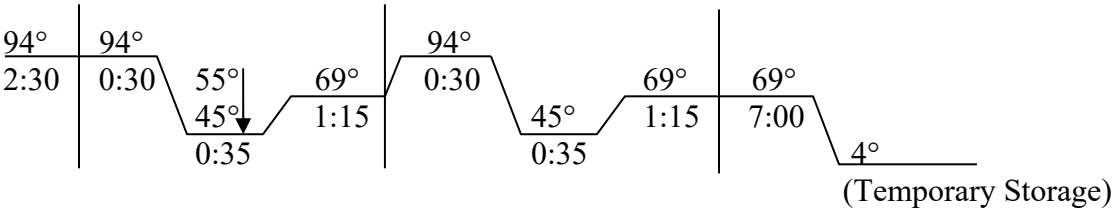
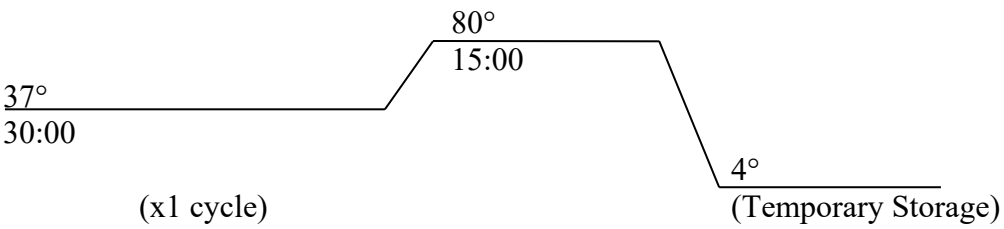
CD14 (alt)



(x10 cycles) (x25 cycles)

Figure 2—Touchdown PCR (TD-PCR) protocols used for nuclear genes (°C).

PCR Gene Clean/ "PCRBead" Protocol (for Beads)



Cycle Sequencing

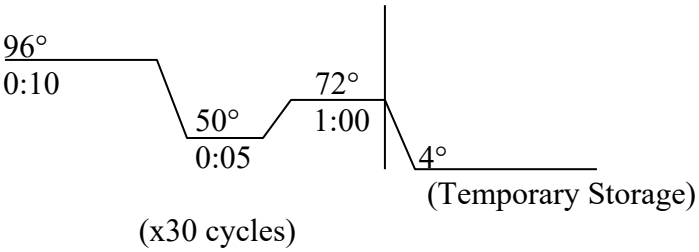


Figure 3—Gene clean protocols (for Bead PCR samples) and Cycle Sequencing protocols for all samples.

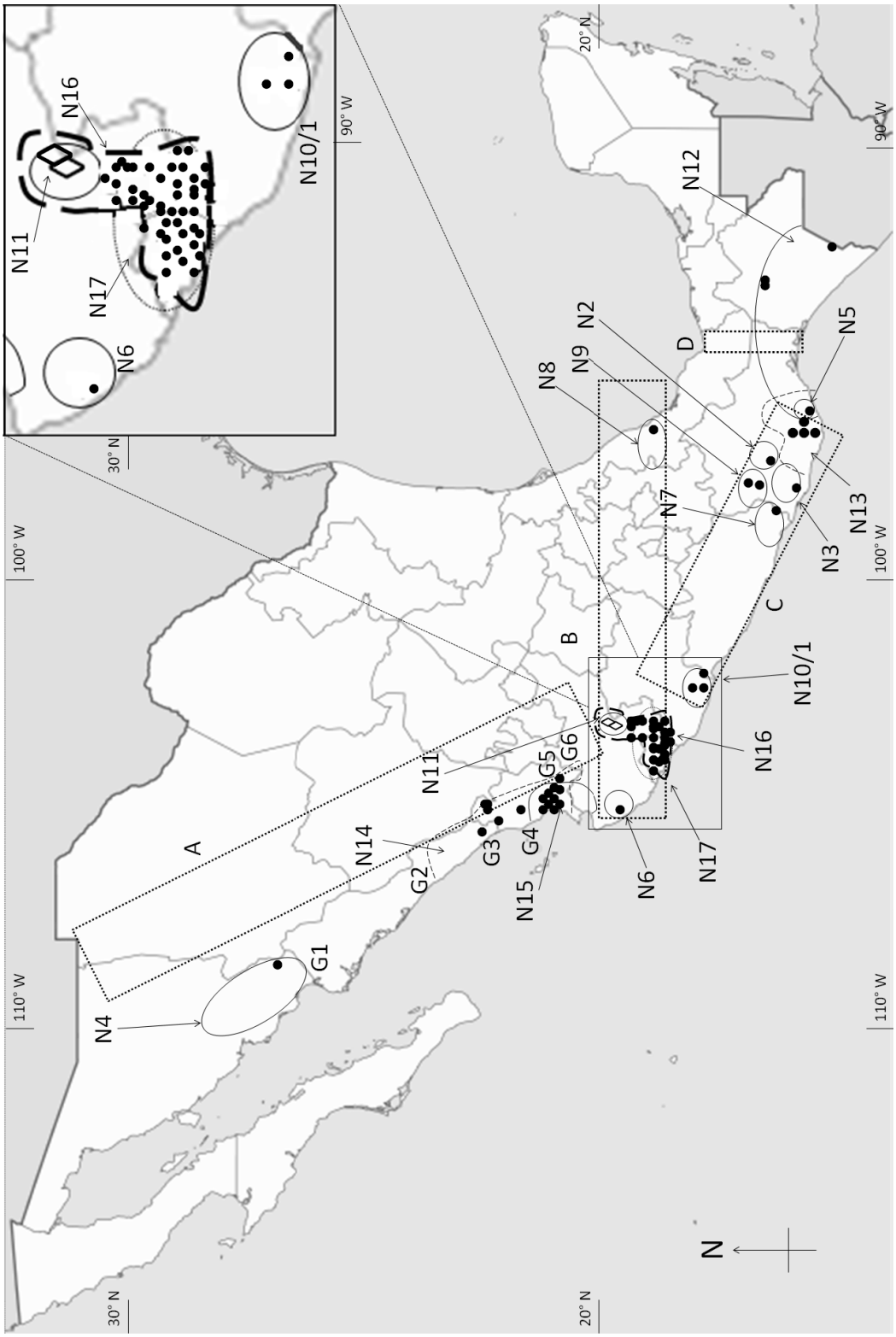


Figure 4—Map of Mexico detailing sampling sites and haplotype networks (*Cytb*) of *H. pictus-spectabilis* as reported by Vance (2006).

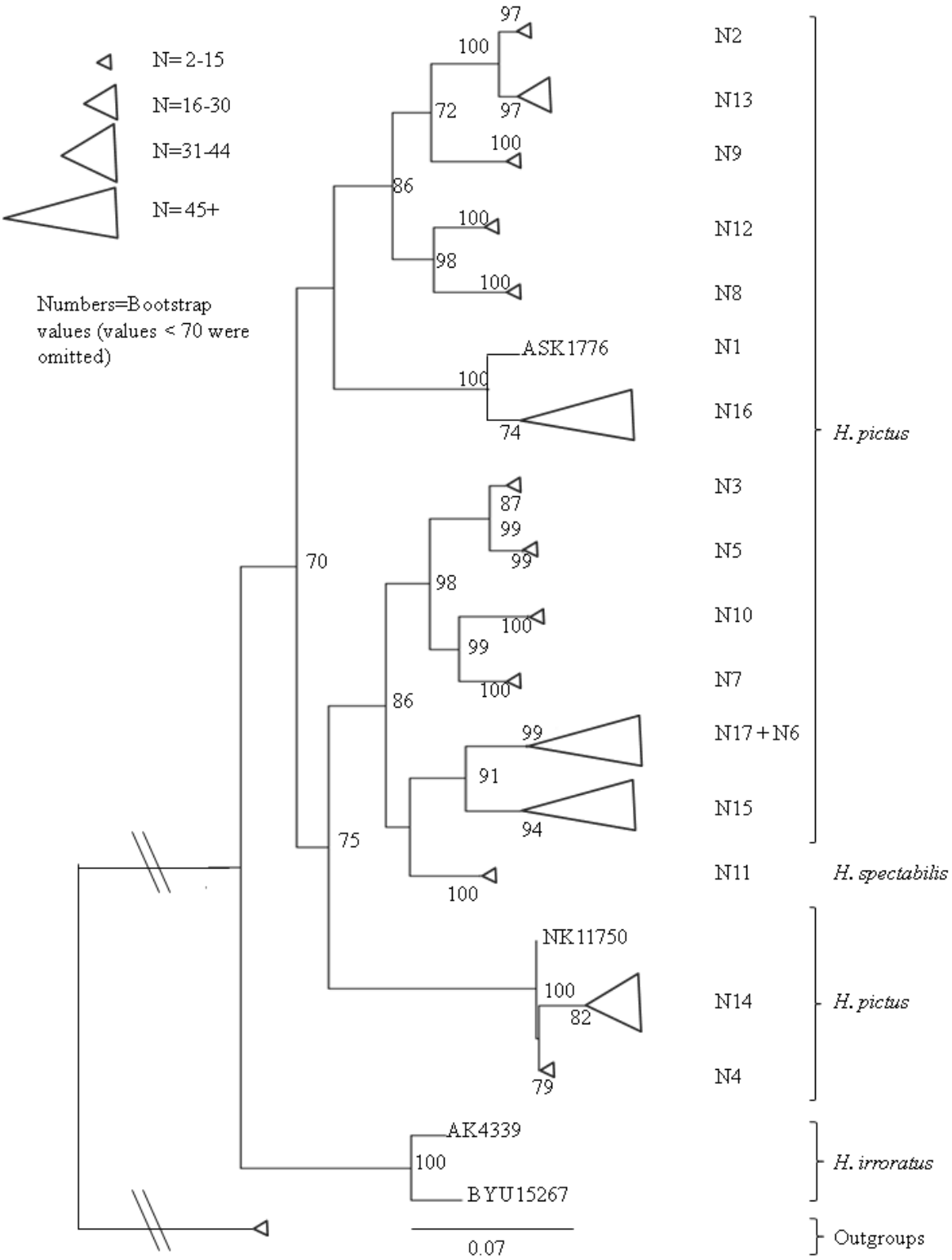
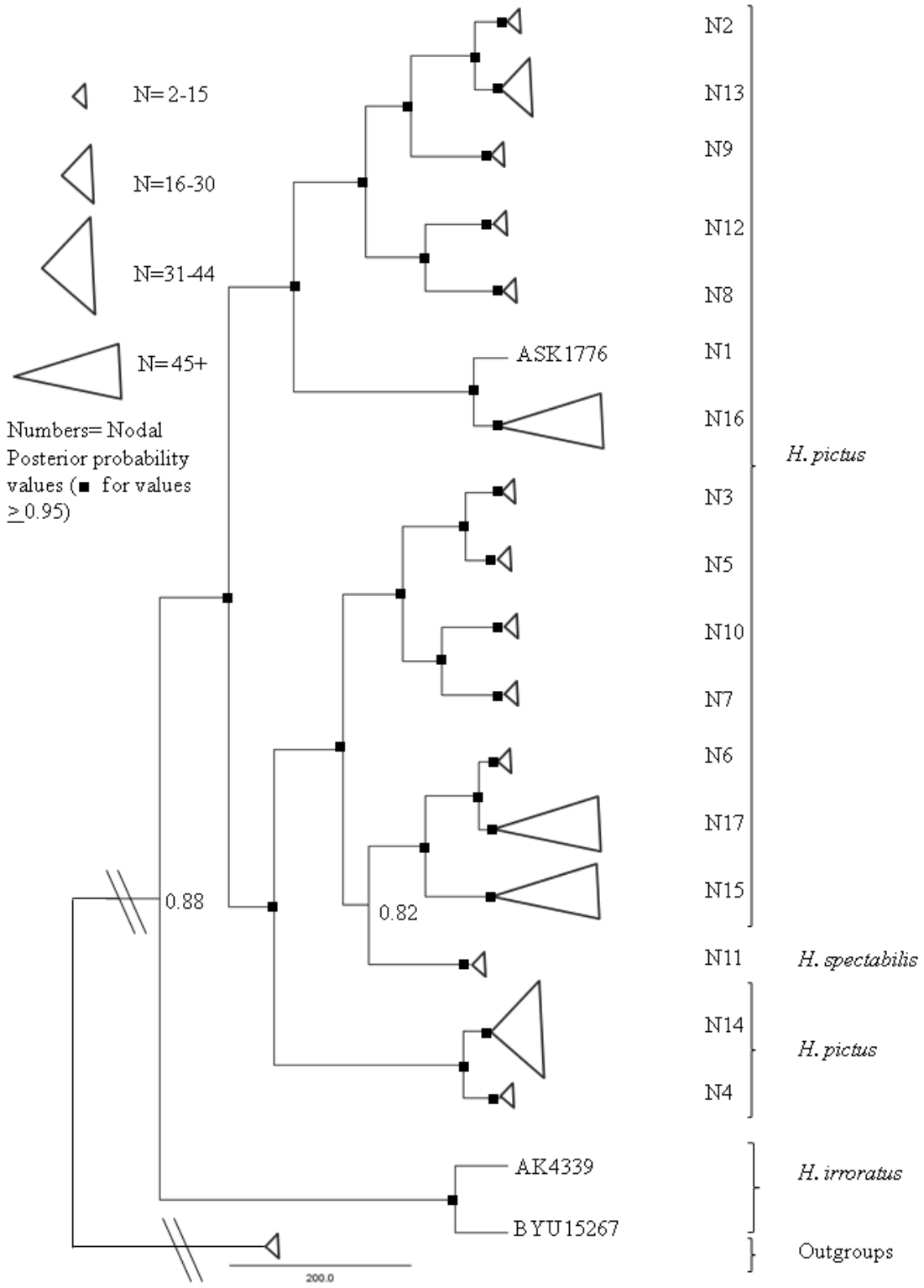


Figure 5—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -13,439.449029) for *Heteromys pictus* and *H. spectabilis* based on *Cytb* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014).



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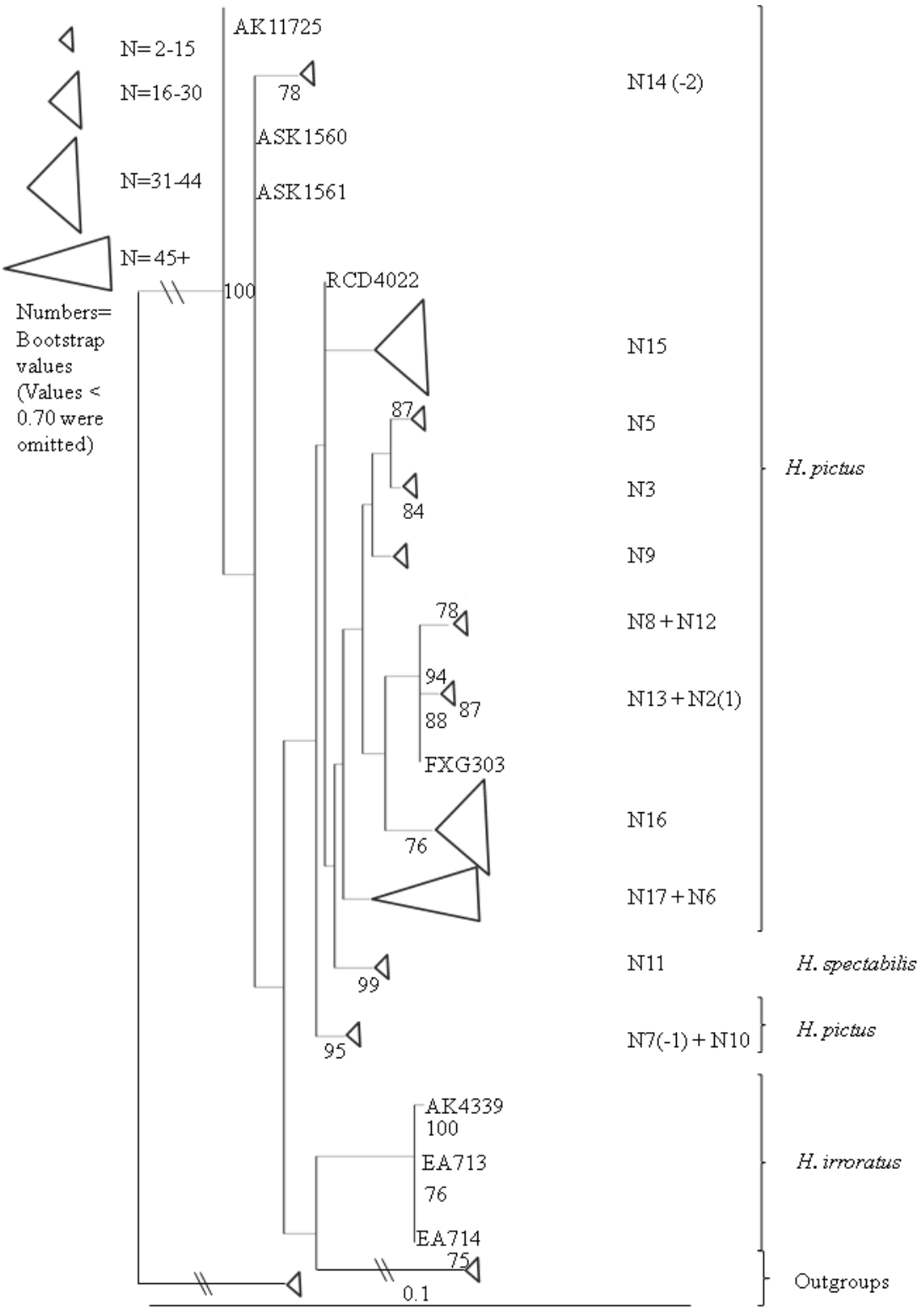

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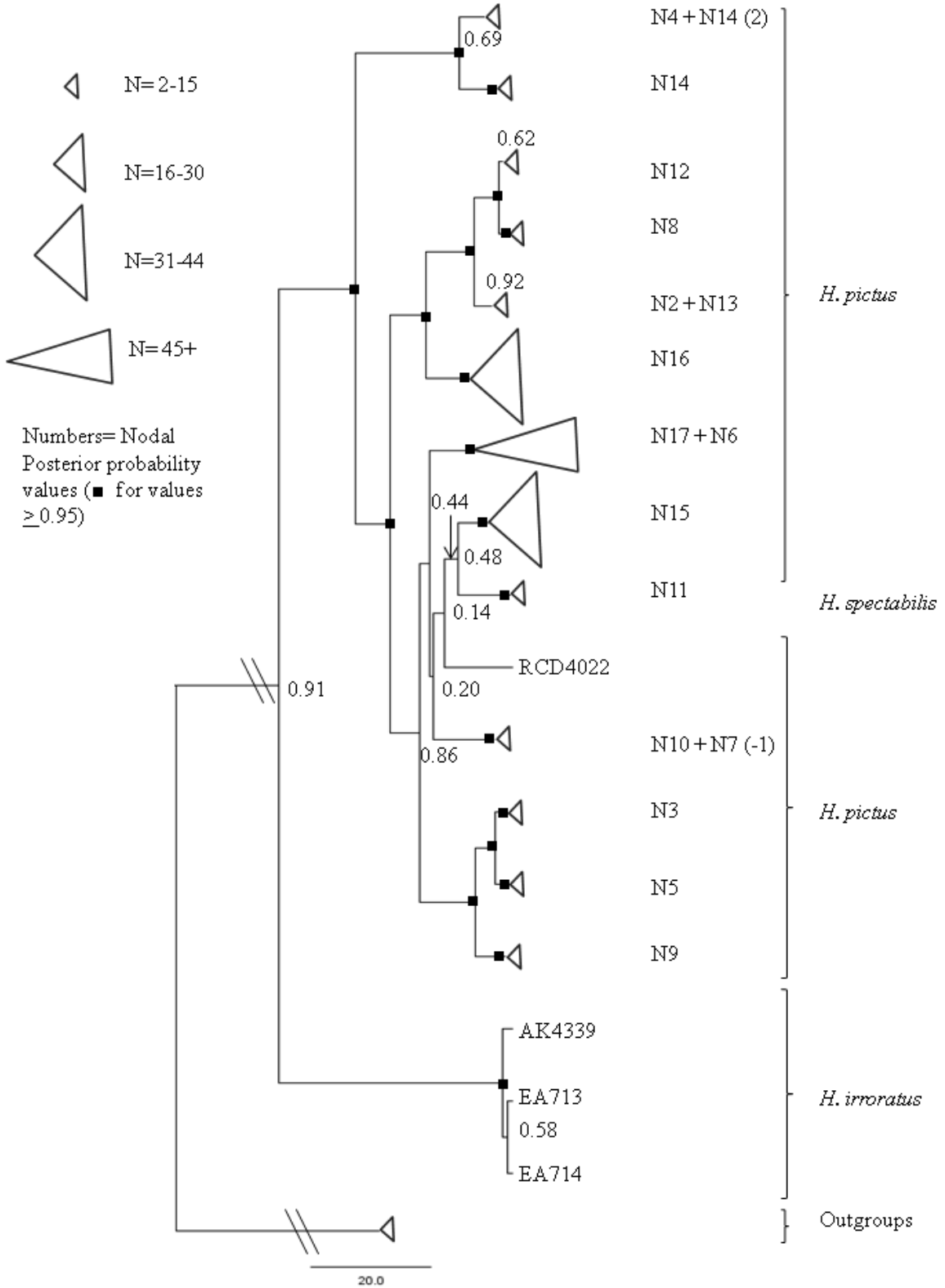


Figure 8— Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *Bfib* sequence data utilizing the GTR+G model in BEAST (Bouckaert et al. 2014).

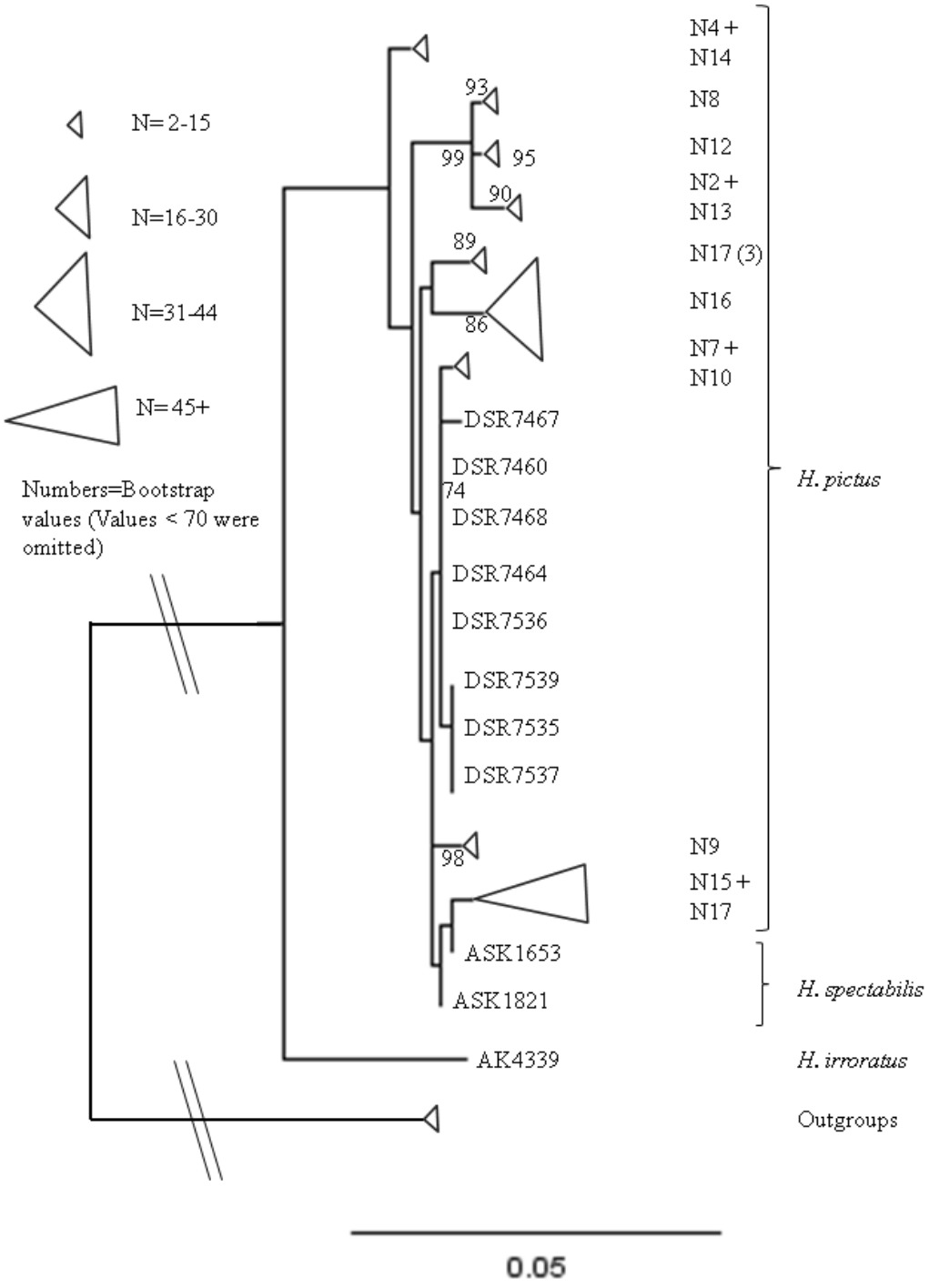
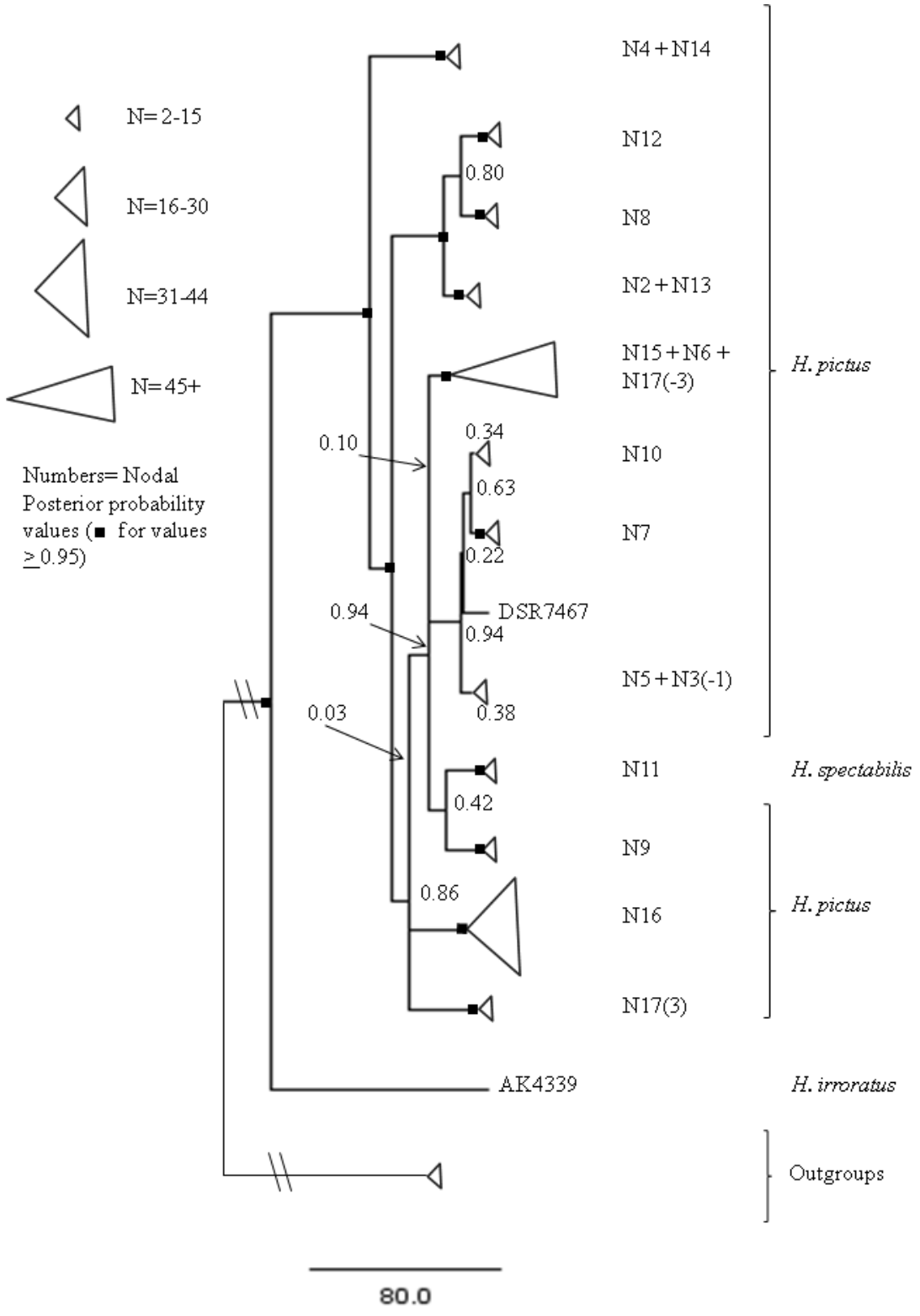


Figure 9—Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -4495.413395) for *H. pictus* and *H. spectabilis* based on *PRKCI* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014).



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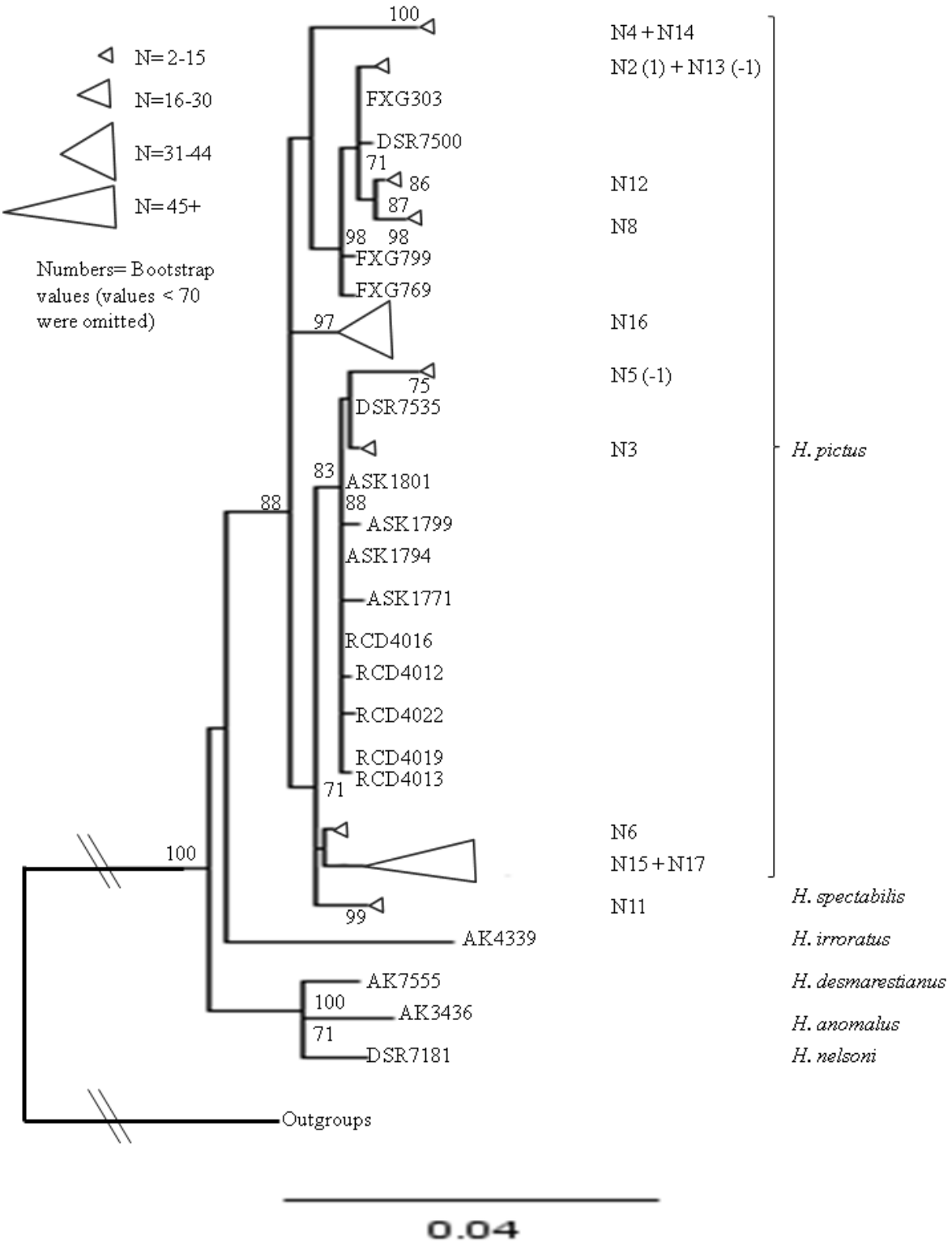

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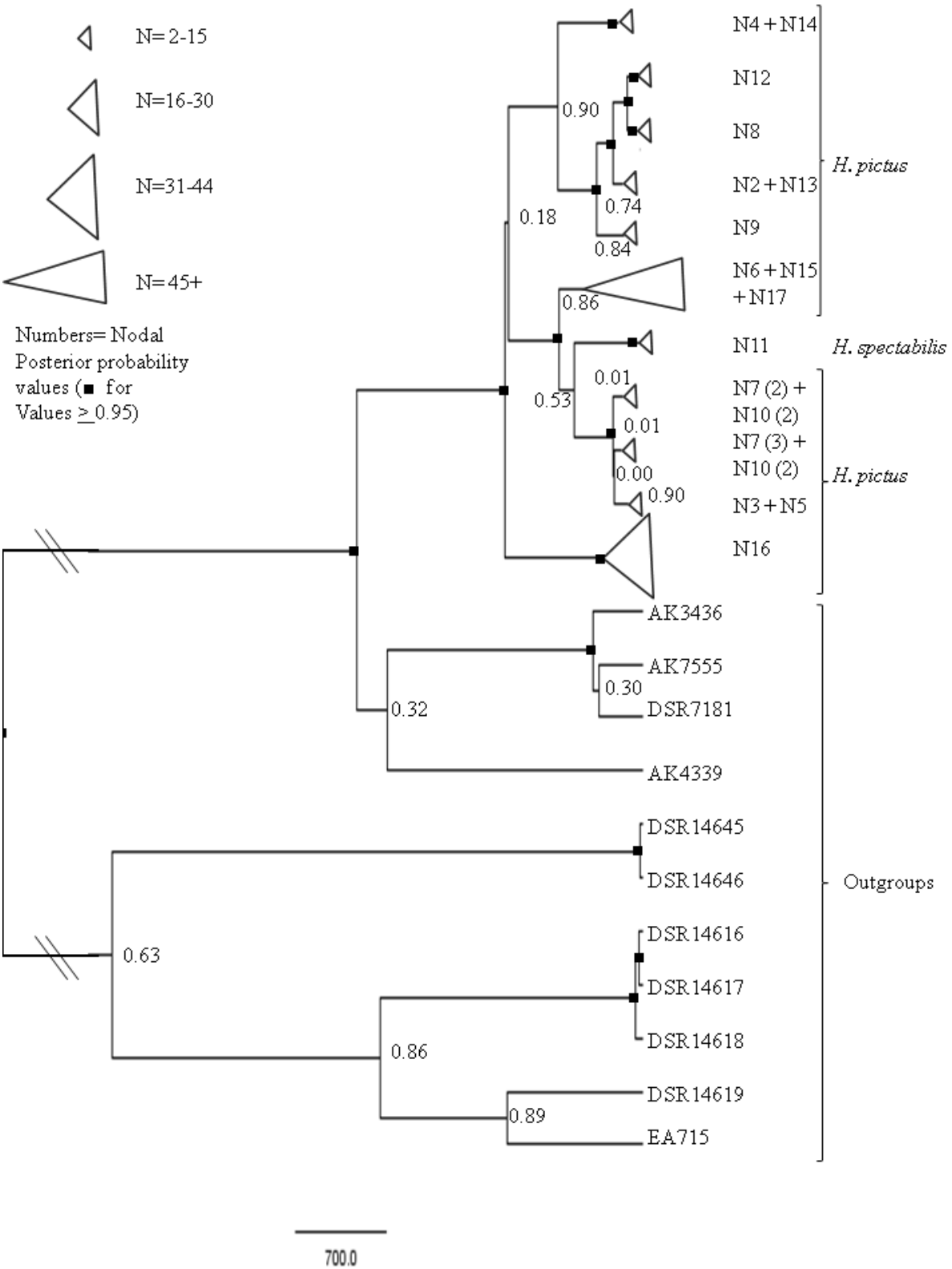

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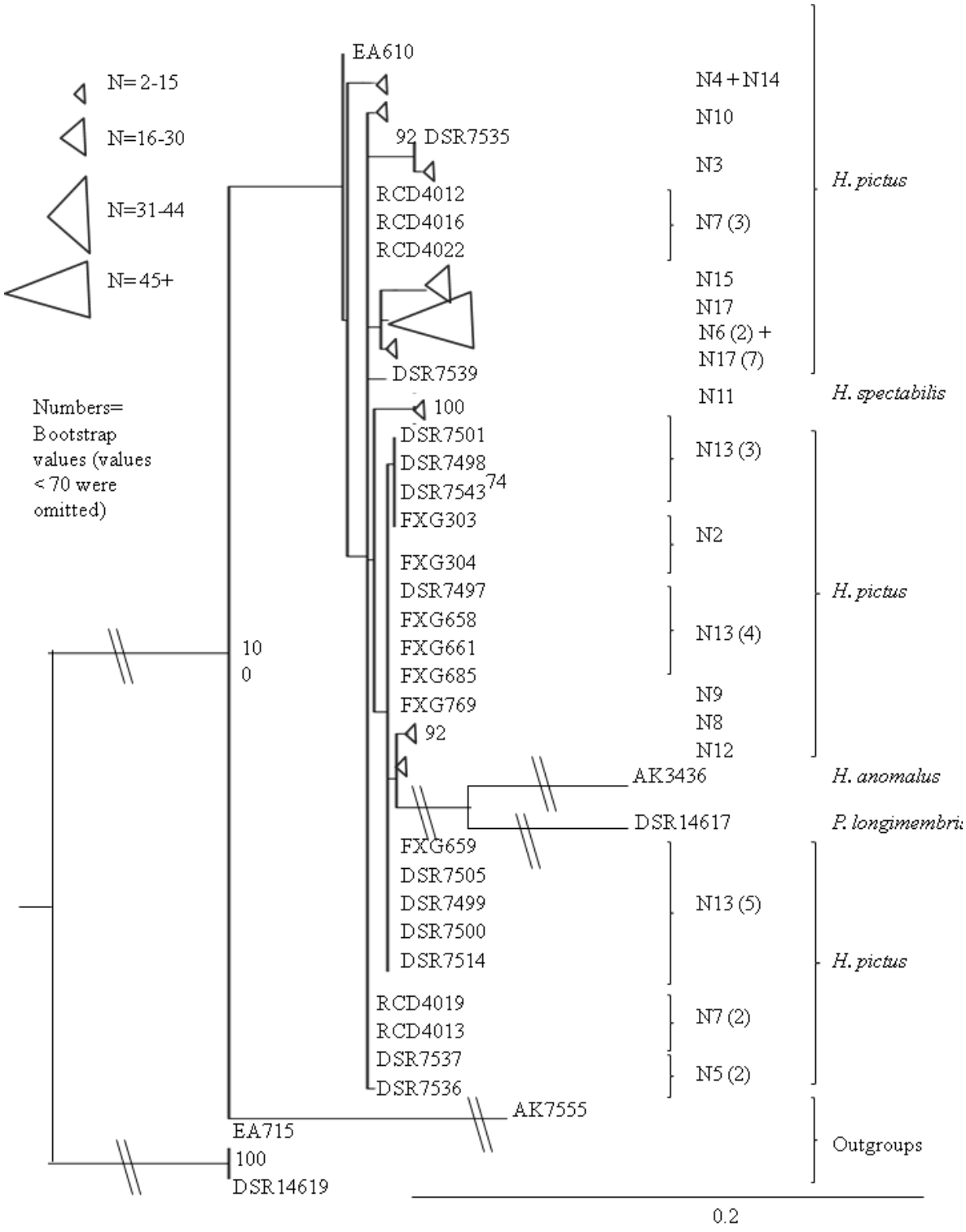

Figure 13— Maximum Likelihood (ML) phylogenetic hypothesis (final Gamma-based Score= -3643.54739) for *H. pictus* and *H. spectabilis* based on *CD14* sequence data utilizing the GTR+G model in RAxML 8.1.15 (Stamatakis 2014).

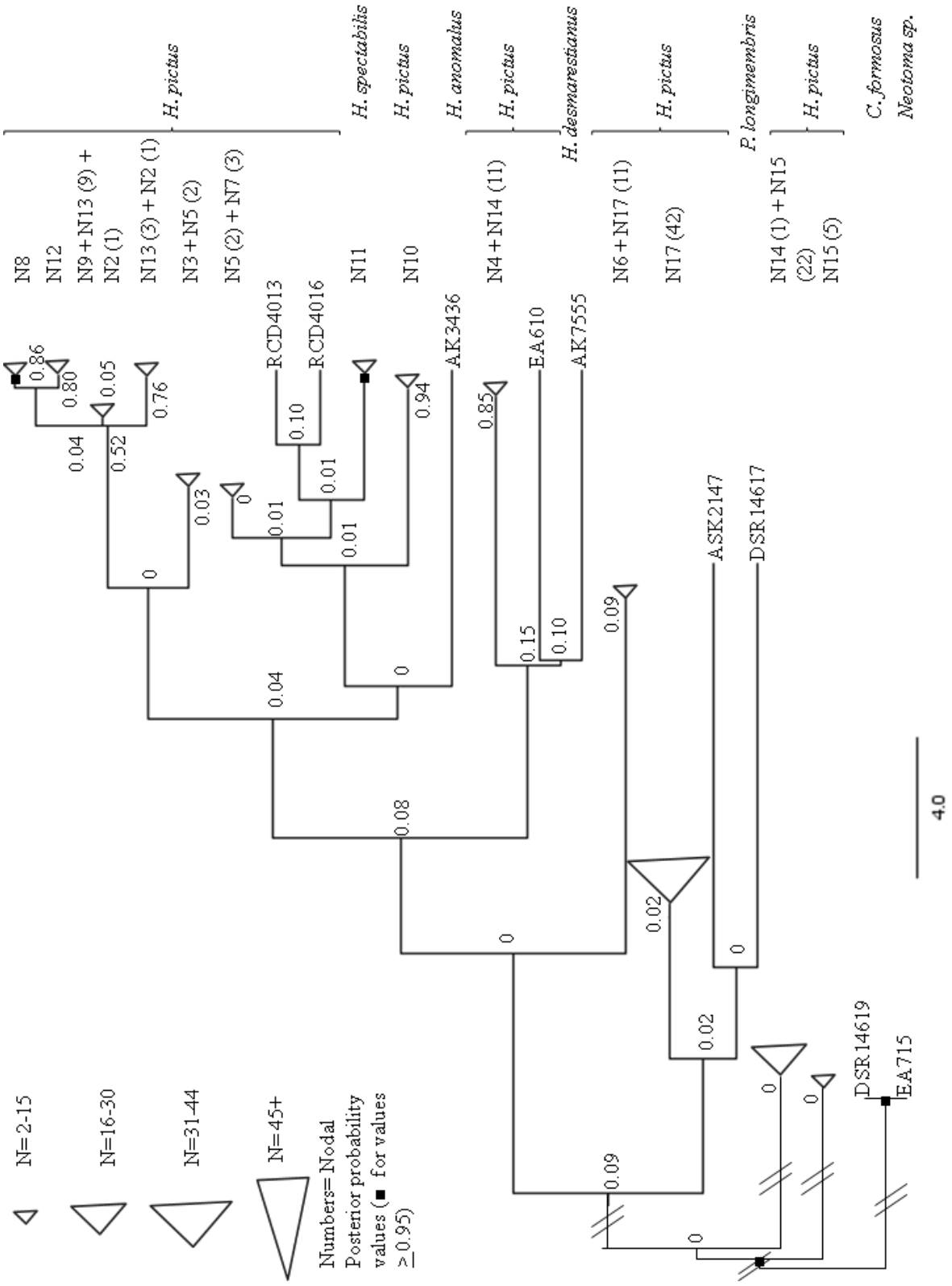

Figure 14— Bayesian phylogenetic hypothesis for *H. pictus* and *H. spectabilis* based on *CD14* sequence data utilizing the GTR+G model in BEAST (Bouckaert et al. 2014).

APPENDICES

Appendix 1- Networks of *Heteromys pictus* and associated subspecies and localities used for this study

Network	Localities	General Grographic Location	Current Taxonomy
1	27a	Southeastern (Coastal) Michoacán	*H. pictus pictus*
2	38	Central Oaxaca	*H. pictus pictus*
3	30	Southwestern Oaxaca	*H. pictus pictus* and *H. pictus annectens*
4	1	Southern Sonora	*H. pictus hispidus*
5	33b	Southern (Coastal) Oaxaca	*H. pictus pictus*
6	15	Northern (Coastal) Jalisco	*H. pictus pictus*
7	28	Southeastern (Coastal) Guerrero	*H. pictus pictus*
8	34	Central Veracruz	*H. pictus pictus*
9	29a, b	Eastern (Central) Oaxaca	*H. pictus annectens*
10	27a, b, c, d	Southeastern (Coastal) Michoacán	*H. pictus pictus* and *H. pictus plantinarensis*
11	26a, b, d	Eastern (Central) Jalisco	*H. spectabilis*
12	33b, 35, 36, 37	Central Chiapas	*H. pictus pictus*
13	31, 32, 33a, b, c	Southern Oaxaca	*H. pictus pictus*
14	3, 4, 5, 6c, 7a, 7b, 13a, b, 14	Southern Sinaloa and Western Nayarit	*H. pictus hispidus*
15	5, 6a, b, c, 7a, b, c, 8a, b, 9a, b, 10, 11, 12	Southeastern Nayarit	*H. pictus pictus* and *H. pictus hispidus*
16	19a, b, c, 20a, b, 21, 24, 25, 26b, c, d, e, PZC1,PZC2, PZC3, PZC4, PZC5, PZC6, PZC7, PZC8, PZC10, PZC13, PZC14, PZC15, PZC16, PZC18	Southern Jalisco and Colima	*H. pictus plantinarensis*
17	16, 17, 18a, b, c, 22, 23a, b, PZC1, PZC5, PZC6, PZC7, PZC8, PZC9, PZC11, PZC12, PZC13, PZC15, PZC17, PZC18	Southern Jalisco and Colima	*H. pictus plantinarensis*

Appendix 2-Specimens list of nuDNA sequences organized by haplotype network and species

Genus	***species***	**field number**	**Museum**	**catno**	**locality**	**state**	**Network**	**Locality Notes**	**Specimen Location**	**latitude**	**longitude**
Heteromys	*pictus*	FXG 303	CMC	406	38	Oaxaca	N2		El Polvorín, 5.3 km turn off Lachao Viejo (by rd.), 1,735 m	16˚52.940' N	97˚08.038'W
Heteromys	*pictus*	FXG 304	BYU	20654	38	Oaxaca	N2		El Polvorín, 5.3 km turn off Lachao Viejo (by rd.), 1,735 m	16˚52.940' N	97˚08.038'W
Heteromys	*pictus*	DSR 7460	BYU	20829	30	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W
Heteromys	*pictus*	DSR 7464	CMC	1130	30	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W

Heteromys	*pictus*	DSR 7467	CMC	1133	30	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W
Heteromys	*pictus*	DSR 7468	CMC	1134	30	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W
Heteromys	*pictus*	AK 11725	TCWC		1	Sonora	N4	type loc sonorana	Alamos		
Heteromys	*pictus*	DSR 7535	BYU	20850	33b	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729'W
Heteromys	*pictus*	DSR 7536	CMC	1158	33b	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729'W

Heteromys	*pictus*	DSR 7537	CMC	1159	33b	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729'W
Heteromys	*pictus*	DSR 7539	CMC	1161	33b	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729'W
Heteromys	*pictus*	ASK 1726	CMNH	103590	15	Jalisco	N6		Chamela, Eastacion de Biología UNAM		
Heteromys	*pictus*	ASK 1730	NA		15	Jalisco	N6		Chamela, Eastacion de Biología UNAM		
Heteromys	*pictus*	RCD 4012	BYU	20818	28	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209'W
Heteromys	*pictus*	RCD 4013	BYU	20819	28	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209'W
Heteromys	*pictus*	RCD 4016	BYU	20822	28	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209'W

Heteromys	*pictus*	RCD 4019	BYU	20825	28	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209'W
Heteromys	*pictus*	RCD 4022			28	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209'W
Heteromys	*pictus*	FSN29901			34	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m		
Heteromys	*pictus*	FN29918			34	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m		
Heteromys	*pictus*	FN29919			34	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m		

Heteromys	*pictus*	FN29949			34	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m		
Heteromys	*pictus*	FXG 769	CMC	886	29a	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W
Heteromys	*pictus*	FXG 799	CMC	900	29b	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W
Heteromys	*pictus*	ASK 1771	CNMA	103600	27a	Michoacán	N10		1 km N La Mira		
Heteromys	*pictus*	ASK 1794	CMNH	103603	27c	Michoacán	N10		4 km N, 3 km W Playa Azul		
Heteromys	*pictus*	ASK 1799	ASNHC	4196	27c	Michoacán	N10		4 km N, 3 km W Playa Azul		

Heteromys	*pictus*	ASK 1801	CMNH	103602	27d	Guerrero	N10		4 km N, 13 km W Playa Azul		
Heteromys	*spectabalis*	ASK 1653	CMNH	103695	26a	Jalisco	N11		11 km NE Contla		
Heteromys	*spectabalis*	ASK 1821	CMNH	103697	26b	Jalisco	N11		10 km NE Contla		
Heteromys	*pictus*	AK 4196	TCWC	37055	36	Chiapas	N12		7.5 km SW Ixtapa	16.752 N	92.967 W
Heteromys	*pictus*	FN33170	ROM	97689	35	Chiapas	N12		El Sumidero	16.750 N	93.067 W
Heteromys	*pictus*	DSR 7497	BYU	20834	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W

Heteromys	*pictus*	DSR 7498	BYU	20835	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W
Heteromys	*pictus*	DSR 7499	BYU	20836	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W
Heteromys	*pictus*	DSR 7500	CMC	1139	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W
Heteromys	*pictus*	DSR 7501	BYU	20837	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W
Heteromys	*pictus*	DSR 7505	CMC	1144	33c	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515’ N	96˚21.131’ W

Heteromys	*pictus*	DSR 7514	BYU	20839	33a	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101'W
Heteromys	*pictus*	DSR 7543	CMC	1165	33b	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729'W
Heteromys	*pictus*	FXG 658	CMC	904	32	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m		
Heteromys	*pictus*	FXG 659	CMC	904	32	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m		
Heteromys	*pictus*	FXG 661	CMC	909	32	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m		

Heteromys	*pictus*	FXG 685	CMC	916	31	Oaxaca	N13		0.7 km E La Soledad (by rd.) Mpio. Candelaria Loxicha, Distrito Pochutla, 1489 m	15° 58.938′ N	96° 31.189′ W
Heteromys	*pictus*	AK 5799	TCWC	42252	6c	Nayarit	N14		2.1 mi E Jalcocotán	21.467 N	105.084 W
Heteromys	*pictus*	ASK 1539	CMNH	103686	4	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W
Heteromys	*pictus*	ASK 1542	CMNH	103689	4	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W
Heteromys	*pictus*	ASK 1545	ASNHC	4198	4	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W
Heteromys	*pictus*	ASK 1547	ASNHC	3236	4	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W
Heteromys	*pictus*	ASK 1554	ASNHC	4201	4	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W

Heteromys	*pictus*	ASK 1560	??		3	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W
Heteromys	*pictus*	ASK 1561	ASNHC	3226	3	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W
Heteromys	*pictus*	ASK 1580	??		5	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W
Heteromys	*pictus*	ASK 1582	ASNHC	3319	5	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W
Heteromys	*pictus*	EA 610	BYU	15776	14	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W
Heteromys	*pictus*	EA 611	BYU	15777	14	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W
Heteromys	*pictus*	JEL 251			13a	Nayarit	N14		2 km SE Ahuacatlan, 1,034 m	21˚01’28”N	104˚28’14”W

Heteromys	*pictus*	JEL 253			13b	Nayarit	N14		8 km W Ahuacatlan, 1,000 m	21˚04’02”N	104˚32’33”W
Heteromys	*pictus*	AK 5605	TCWC	42226	6c	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W
Heteromys	*pictus*	AK 5616	TCWC	42237	6c	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W
Heteromys	*pictus*	AK 5619	TCWC	42240	6c	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W
Heteromys	*pictus*	ASK 1500	CMNH	103637	7a	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W
Heteromys	*pictus*	ASK 1501	CMNH	103638	7a	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W
Heteromys	*pictus*	ASK 1502	ASNHC	3296	7a	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W
Heteromys	*pictus*	ASK 1509	CMNH	103632	7b	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W

Heteromys	*pictus*	ASK 1517	ASNHC	3293	7b	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W
Heteromys	*pictus*	ASK 1519	CMNH	103629	7c	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W
Heteromys	*pictus*	ASK 1581	CMNH	103646	5	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W
Heteromys	*pictus*	ASK 1586	ASNHC	3322	5	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W
Heteromys	*pictus*	ASK 1591	CMNH	103626	11	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W
Heteromys	*pictus*	ASK 1594	ASNHC	3278	11	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W
Heteromys	*pictus*	ASK 1596	ASNHC	3279	11	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W
Heteromys	*pictus*	ASK 1597	NA		11	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W

Heteromys	*pictus*	ASK 1607	CMNH	103619	10	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W
Heteromys	*pictus*	ASK 1611	CMNH	103622	10	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W
Heteromys	*pictus*	ASK 1613	CMNH	103624	10	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W
Heteromys	*pictus*	ASK 1614	NA		10	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W
Heteromys	*pictus*	ASK 1616	ASNHC	3263	10	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W
Heteromys	*pictus*	ASK 1658	ASNHC	3304	8a	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W
Heteromys	*pictus*	ASK 1663	ASNHC	3306	8a	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W
Heteromys	*pictus*	ASK 1664	CMNH	103696	26a	Jalisco	N15		11 km NE Contla		

Heteromys	*pictus*	ASK 1680	CMNH	103643	8b	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W
Heteromys	*pictus*	ASK 1685	CMNH	103614	6a	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W
Heteromys	*pictus*	ASK 1689	CMNH	103616	6a	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W
Heteromys	*pictus*	ASK 1711	CMNH	103690	9a	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W
Heteromys	*pictus*	ASK 1712	CMNH	103606	9a	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W
Heteromys	*pictus*	ASK 1713	CMNH	103607	9a	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W
Heteromys	*pictus*	ASK 1723	ASNHC	3250	9b	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W
Heteromys	*pictus*	ASK 1725	CMNH	103691	9b	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W

Heteromys	*pictus*	ASK 1731	NA		9b	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W
Heteromys	*pictus*	DSR 7384	CMC	1121	12	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263'W
Heteromys	*pictus*	ASK 1640	CMNH	103580	24	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W
Heteromys	*pictus*	ASK 1641	CMNH	103581	24	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W
Heteromys	*pictus*	ASK 1645	ASNHC	3210	24	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W
Heteromys	*pictus*	ASK 1646	ASNHC	3211	24	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W
Heteromys	*pictus*	ASK 1735	CMNH	103658	PZC2	Colima	N16		3 km SE Colima	19.198 N	103.696 W

Heteromys	*pictus*	ASK 1736	CMNH	103659	PZC2	Colima	N16		3 km SE Colima	19.198 N	103.696 W
Heteromys	*pictus*	ASK 1741	NA		PZC2	Colima	N16		3 km SE Colima	19.198 N	103.696 W
Heteromys	*pictus*	ASK 1810	CMNH	103662	20a	Colima	N16		10 km SE Colima	19.153 N	103.649 W
Heteromys	*pictus*	ASK 1811	CMNH	103663	20a	Colima	N16		10 km SE Colima	19.153 N	103.649 W
Heteromys	*pictus*	ASK 1815	NA		20a	Colima	N16		10 km SE Colima	19.153 N	103.649 W
Heteromys	*pictus*	ASK 1832	NA		26c	Jalisco	N16		4 km NE Contla	19.279 N	103.056 W
Heteromys	*pictus*	ASK 1835	CMNH	103679	26b	Jalisco	N16		10 km NE Contla	19.814 N	103.016 W
Heteromys	*pictus*	ASK 1837	CMNH	103678	20b	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W

Heteromys	*pictus*	ASK 1838	NA		20b	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W
Heteromys	*pictus*	ASK 1839	ASNHC	3199	20b	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W
Heteromys	*pictus*	ASK 1840	NA		20b	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W
Heteromys	*pictus*	ASK 1844	NA		PCZ14	Colima	N16		3 km NE Tecuizitan	19.158 N	103.649 W
Heteromys	*pictus*	ASK 1845	NA		PCZ14	Colima	N16		3 km NE Tecuizitan	19.158 N	103.649 W
Heteromys	*pictus*	ASK 1849	NA		PZC4	Colima	N16		15 km SSW Colima	19.092 N	103.772 W
Heteromys	*pictus*	ASK 1850	ASNHC	3136	PZC4	Colima	N16		15 km SSW Colima	19.092 N	103.772 W
Heteromys	*pictus*	ASK 1853	CMNH	103667	PZC4	Colima	N16		15 km SSW Colima	19.092 N	103.772 W

Heteromys	*pictus*	ASK 1857	ASNHC	4155	PZC4	Colima	N16		15 km SSW Colima	19.092 N	103.772 W
Heteromys	*pictus*	ASK 1880	CMNH	103684	PCZ16	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W
Heteromys	*pictus*	ASK 1881	CMNH	103685	PCZ16	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W
Heteromys	*pictus*	ASK 1887	ASNHC	3225	PCZ16	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W
Heteromys	*pictus*	ASK 1891	CMNH	103669	19a	Colima	N16		22 km SSW Colima	19.033 N	103.797 W
Heteromys	*pictus*	ASK 1894	CMNH	103670	19a	Colima	N16		22 km SSW Colima	19.033 N	103.797 W
Heteromys	*pictus*	ASK 1897	ASNHC	4177	PCZ16	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W
Heteromys	*pictus*	ASK 1955	ASNHC	3127	PZC3	Colima	N16		El Mezquital, 4 km SSW Colima	19.183 N	103.731 W

Heteromys	*pictus*	ASK 1956	ASNHC	3128	PZC3	Colima	N16		El Mezquital, 4 km SSW Colima	19.183 N	103.731 W
Heteromys	*pictus*	ASK 1974	ASNHC	3088	PCZ13	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 2049	NA		PCZ7	Colima	N16		17 km NW Colima	19.325 N	103.832 W
Heteromys	*pictus*	ASK 2053	CMNH	103652	PCZ7	Colima	N16		17 km NW Colima	19.325 N	103.832 W
Heteromys	*pictus*	ASK 2056	ASNHC	3108	PCZ7	Colima	N16		17 km NW Colima	19.325 N	103.832 W
Heteromys	*pictus*	ASK 2058	ASNHC	3118	PCZ5	Colima	N16		8 km NW Colima	19.267 N	103.771 W
Heteromys	*pictus*	ASK 2070	CMNH	103651	PCZ8	Colima	N16		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2074	ASNHC	3104	PCZ8	Colima	N16		22 km NW Colima	19.357 N	103.865 W

Heteromys	*pictus*	ASK 2121	NA		19c	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W
Heteromys	*pictus*	CLM 34	CNMA	28194	26e	Jalisco	N16		Rancho Laurel, 1.5 l m S Contla, Mpio Tamazula de Gordiano, 1,200 m	19.750 N	103.083 W
Heteromys	*pictus*	ASK 1868	CMNH	103592	PCZ17	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W
Heteromys	*pictus*	ASK 1869	CMNH	103593	PCZ17	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W
Heteromys	*pictus*	ASK 1870	CMNH	103594	PCZ17	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W
Heteromys	*pictus*	ASK 1871	CMNH	103595	PCZ17	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W
Heteromys	*pictus*	ASK 1872	CMNH	103596	PCZ17	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W

Heteromys	*pictus*	ASK 1927	ASNHC	4168	23a	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W
Heteromys	*pictus*	ASK 1930	CMNH	103587	23a	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W
Heteromys	*pictus*	ASK 1934	CMNH	103567	22	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W
Heteromys	*pictus*	ASK 1935	NA		22	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W
Heteromys	*pictus*	ASK 1937	ASNHC	3158	22	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W
Heteromys	*pictus*	ASK 1939	ASNHC	4163	22	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W
Heteromys	*pictus*	ASK 1950	ASNHC	3187	23b	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W
Heteromys	*pictus*	ASK 1953	CMNH	103576	23b	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W

Heteromys	*pictus*	ASK 1961	CMNH	103541	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1962	CMNH	103542	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1963	CMNH	103543	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1964	CMNH	103544	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1965	CMNH	103545	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1966	CMNH	103546	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1967	CMNH	103547	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1975	NA		PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W

Heteromys	*pictus*	ASK 1978	CMNH	103548	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1979	CMNH	103549	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1980	CMNH	103550	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1981	CMNH	103551	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1982	CMNH	103552	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 1983	CMNH	103561	PCZ18	Colima	N17		6 km S Cuauhtemoc	19.279 N	103.600 W
Heteromys	*pictus*	ASK 2001	ASNHC	3073	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W
Heteromys	*pictus*	ASK 2011	ASNHC	4141	PCZ13	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W

Heteromys	*pictus*	ASK 2055	CMNH	103557	PCZ7	Colima	N17		17 km NW Colima	19.325 N	103.832 W
Heteromys	*pictus*	ASK 2062	CMNH	103560	PCZ5	Colima	N17		8 km NW Colima	19.267 N	103.771 W
Heteromys	*pictus*	ASK 2068	CMNH	103556	PCZ8	Colima	N17		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2071	ASNHC	3101	PCZ8	Colima	N17		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2073	ASNHC	3103	PCZ8	Colima	N17		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2075	ASNHC	3105	PCZ8	Colima	N17		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2076	ASNHC	3106	PCZ8	Colima	N17		22 km NW Colima	19.357 N	103.865 W
Heteromys	*pictus*	ASK 2080	CMNH	103559	PCZ6	Colima	N17		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W

Heteromys	*pictus*	ASK 2088	CMNH	103555	PCZ9	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W
Heteromys	*pictus*	ASK 2090	NA		PCZ9	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W
Heteromys	*pictus*	ASK 2091	NA		PCZ9	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W
Heteromys	*pictus*	ASK 2100	ASNHC	3095	PCZ11	Colima	N17		34 km NW Colima	19.434 N	103.947 W
Heteromys	*pictus*	ASK 2105	CMNH	103588	18c	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W
Heteromys	*pictus*	ASK 2106	CMNH	103589	18c	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W
Heteromys	*pictus*	ASK 2125	CMNH	103562	17	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W
Heteromys	*pictus*	ASK 2126	CMNH	103563	17	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W

Heteromys	*pictus*	ASK 2133	NA		18a	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W
Heteromys	*pictus*	ASK 2137	CMNH	103584	18b	Colima	N17		2.4 km S Rincón de Lopez	19.028 N	103.805 W
Heteromys	*pictus*	ASK 2142	NA		PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2144	CMNH	103568	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2146	CMNH	103569	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2147	CMNH	103570	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2148	CMNH	103571	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2149	CMNH	103572	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W

Heteromys	*pictus*	ASK 2151	CMNH	103573	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2158	ASNHC	3180	16	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W
Heteromys	*pictus*	ASK 2159	NA		16	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W
Heteromys	*pictus*	ASK 2160	CMNH	103582	16	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W
Heteromys	*pictus*	ASK 2173	ASNHC	3164	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2174	ASNHC	3165	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2177	NA		PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2180	ASNHC	3170	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W

Heteromys	*pictus*	ASK 2187	ASNHC	3177	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Heteromys	*pictus*	ASK 2188	ASNHC	3163	PCZ15	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W
Chaetodipus	*formosus*	DSR14619	BYU	39800					SE Sarcobatus Flat, 1270 m	37.0431 N	
Chaetodipus	*formosus*	DSR14620	BYU	39801					SE Sarcobatus Flat, 1270 m	37.0431 N	
Chaetodipus	*formosus*	DSR14621	BYU	39802					SE Sarcobatus Flat, 1270 m	37.0431 N	
Dipodomys	*ordii*	DSR14544	BYU	39689					8.1 km S Window Blind Peak, 1805 m	38.9708 N	40.6584 W
Dipodomys	*ordii*	DSR14545	BYU	39690					8.1 km S Window Blind Peak, 1805 m	38.9708 N	40.6584 W
Dipodomys	*ordii*	DSR14546	BYU	39691					8.1 km S Window Blind Peak, 1805 m	38.9708 N	40.6584 W

Heteromys	*anomalus*	AK3436									
Heteromys	*desmarestianus*	AK7555									
Heteromys	*irroratus*	AK4339									
Heteromys	*irroratus*	EA713	BYU	15765					2.1 km E, 5.8 km N Vicente Guerrero, 1937 m, Mpio. Vicente Guerrero		
Heteromys	*irroratus*	EA714	BYU	15766					2.1 km E, 5.8 km N Vicente Guerrero, 1937 m, Mpio. Vicente Guerrero		
Heteromys	*nelsoni*	DSR7181									

Neotoma	*sp*	EA715	BYU	15767					2.1 km E, 5.8 km N Vicente Guerrero, 1937 m, Mpio. Vicente Guerrero		
Perognathus	*longimembris*	DSR14616	BYU	39766					SE Sarcobatus Flat, 1270 m	37.0431 N	116.8152 W
Perognathus	*longimembris*	DSR14617	BYU	39767					SE Sarcobatus Flat, 1270 m	37.0431 N	116.8152 W
Perognathus	*longimembris*	DSR14618	BYU	39768					SE Sarcobatus Flat, 1270 m	37.0431 N	116.8152 W

Appendix 3- Total *Cytb* samples (720) organized by haplotype network and alphabetized

Museum	catno	comment	*Genus*	*species*	locality	field number	state	Haplotype network	Locality notes	Specimen Location	latitude	longitude	GenBank
ASNHC	4190		*Heteromys*	*pictus*	27a	ASK 1776	Michoacán	N1		1 km N La Mira			
CMC	406		*Heteromys*	*pictus*	38	FXG 303	Oaxaca	N2		El Polvorín, 5.3 km turn off Lachao Viejo (by rd.) 1,735 m	16˚52.940' N	97˚08.038' W	DQ168532
BYU	20654		*Heteromys*	*pictus*	38	FXG 304	Oaxaca	N2		El Polvorín, 5.3 km turn off Lachao Viejo (by rd.) 1,735 m	16˚52.940' N	97˚08.038' W	DQ168533
			Heteromys	*pictus*	38	FXG 308	Oaxaca	N2		El Polvorín, 5.3 km turn off Lachao Viejo (by rd.) 1,735 m	16˚52.940' N	97˚08.038' W	
BYU	20829		*Heteromys*	*pictus*	30	DSR 7460	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
			Heteromys	*pictus*	30	DSR 7461	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	

CMC	1128		*Heteromys*	*pictus*	30	DSR 7462	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
CMC	1129		*Heteromys*	*pictus*	30	DSR 7463	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
CMC	1130		*Heteromys*	*pictus*	30	DSR 7464	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
BYU	10832		*Heteromys*	*pictus*	30	DSR 7465	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	

CMC	1132		*Heteromys*	*pictus*	30	DSR 7466	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
CMC	1133		*Heteromys*	*pictus*	30	DSR 7467	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
CMC	1134		*Heteromys*	*pictus*	30	DSR 7468	Oaxaca	N3	type loc phaeura	Rio de la Areana, 6 km E (by rd.) Pinotepa Nacional, Mpio. Pinotepa Nacional, 60 m	16˚19.849' N	98˚00.835' W	
TCWC		NK 55916?	*Heteromys*	*pictus*	1	AK 5596	Sonora	N4	type loc sonorana	Alamos			
TCWC			*Heteromys*	*pictus*	1	AK 11725	Sonora	N4	type loc sonorana	Alamos			DQ168535
MSB?		NK 11750?	*Heteromys*	*pictus*	1	AK 11750	Sonora	N4	type loc sonorana	Alamos			
			Heteromys	*pictus*	1	LVT 1253	Sonora	N4	type loc sonorana	Alamos			
			Heteromys	*pictus*	33b	DSR 7531	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	

			Heteromys	*pictus*	33b	DSR 7533	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
BYU	20850		*Heteromys*	*pictus*	33b	DSR 7535	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1158		*Heteromys*	*pictus*	33b	DSR 7536	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1159		*Heteromys*	*pictus*	33b	DSR 7537	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1161		*Heteromys*	*pictus*	33b	DSR 7539	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1163		*Heteromys*	*pictus*	33b	DSR 7541	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1166		*Heteromys*	*pictus*	33b	DSR 7544	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1168		*Heteromys*	*pictus*	33b	DSR 7546	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	

CMC	1169		*Heteromys*	*pictus*	33b	DSR 7547	Oaxaca	N5		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMNH	103590		*Heteromys*	*pictus*	15	ASK 1726	Jalisco	N6		Chamela, Eastacion de Biología UNAM			
			Heteromys	*pictus*	15	ASK 1727	Jalisco	N6		Chamela, Eastacion de Biología UNAM			
ASNHC	3204		*Heteromys*	*pictus*	15	ASK 1728	Jalisco	N6		Chamela, Eastacion de Biología UNAM			
			Heteromys	*pictus*	15	ASK 1729	Jalisco	N6		Chamela, Eastacion de Biología UNAM			
NA			*Heteromys*	*pictus*	15	ASK 1730	Jalisco	N6		Chamela, Eastacion de Biología UNAM			
BYU	20814		*Heteromys*	*pictus*	28	RCD 4008	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20815		*Heteromys*	*pictus*	28	RCD 4009	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20816		*Heteromys*	*pictus*	28	RCD 4010	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20817		*Heteromys*	*pictus*	28	RCD 4011	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	

BYU	20818		*Heteromys*	*pictus*	28	RCD 4012	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20819		*Heteromys*	*pictus*	28	RCD 4013	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20820		*Heteromys*	*pictus*	28	RCD 4014	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20821		*Heteromys*	*pictus*	28	RCD 4015	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20822		*Heteromys*	*pictus*	28	RCD 4016	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20823		*Heteromys*	*pictus*	28	RCD 4017	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20824		*Heteromys*	*pictus*	28	RCD 4018	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
BYU	20825		*Heteromys*	*pictus*	28	RCD 4019	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4020	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4021	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4022	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	

			Heteromys	*pictus*	28	RCD 4023	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4024	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4025	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4026	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4027	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4028	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4029	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
			Heteromys	*pictus*	28	RCD 4030	Guerrero	N7	type loc rostratus	10 km SW (by rd.) Ometepec, 225 m	16˚39.481'N	98˚28.209' W	
CMNA	34324		*Heteromys*	*pictus*	34	CLM 252	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			DQ168512

			Heteromys	*pictus*	34	FN 29901	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29902	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29911	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29912	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29913	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29914	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			

			Heteromys	*pictus*	34	FN 29915	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29916	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29917	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29918	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29919	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
			Heteromys	*pictus*	34	FN 29920	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			

			Heteromys	*pictus*	34	FN 29949	Veracruz	N8		Estacion Biologica La Mancha, 30 km N, 3 km E Cuidad Cardel, Mpio Actopan, 8 m			
CMC	886		*Heteromys*	*pictus*	29a	FXG 769	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
CMC	887		*Heteromys*	*pictus*	29a	FXG 770	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 771	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 772	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 773	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 774	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	

			Heteromys	*pictus*	29a	FXG 775	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 776	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29a	FXG 777	Oaxaca	N9		0.8 km S Concepcion de Guerrero, Mpio Putla, Distrito Putla, 1022 m	17° 04.137′ N	97° 51.989′ W	
			Heteromys	*pictus*	29b	FXG 796	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
			Heteromys	*pictus*	29b	FXG 797	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
			Heteromys	*pictus*	29b	FXG 798	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
CMC	900		*Heteromys*	*pictus*	29b	FXG 799	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	

			Heteromys	*pictus*	29b	FXG 800	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
			Heteromys	*pictus*	29b	FXG 801	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
			Heteromys	*pictus*	29b	FXG 802	Oaxaca	N9		5.5 km Concepcion de Guerrero, 936 m, Mpio Putla, Distrito Putla	17° 02.521′ N	97° 52.923′ W	
CNMA	103600		*Heteromys*	*pictus*	27a	ASK 1771	Michoacán	N10		1 km N La Mira			
CNMA	103600		*Heteromys*	*pictus*	27a	ASK 1772	Michoacán	N10		1 km N La Mira			
ASNHC	3233		*Heteromys*	*pictus*	27a	ASK 1773	Michoacán	N10		1 km N La Mira			
			Heteromys	*pictus*	27a	ASK 1774	Michoacán	N10		1 km N La Mira			
NA			*Heteromys*	*pictus*	27a	ASK 1775	Michoacán	N10		1 km N La Mira			
ASNHC	4191		*Heteromys*	*pictus*	27a	ASK 1777	Michoacán	N10		1 km N La Mira			
ASNHC	4192		*Heteromys*	*pictus*	27a	ASK 1778	Michoacán	N10		1 km N La Mira			
ASNHC	4193		*Heteromys*	*pictus*	27a	ASK 1779	Michoacán	N10		1 km N La Mira			
ASNHC	4194		*Heteromys*	*pictus*	27a	ASK 1780	Michoacán	N10		1 km N La Mira			
ASNHC	3230		*Heteromys*	*pictus*	27b	ASK 1781	Michoacán	N10		8 km N La Mira			
CMNH	103597		*Heteromys*	*pictus*	27b	ASK 1782	Michoacán	N10		8 km N La Mira			
			Heteromys	*pictus*	27b	ASK 1783	Michoacán	N10		8 km N La Mira			
NA			*Heteromys*	*pictus*	27b	ASK 1784	Michoacán	N10		8 km N La Mira			

ASNHC	3231		*Heteromys*	*pictus*	27b	ASK 1785	Michoacán	N10		8 km N La Mira			
NA			*Heteromys*	*pictus*	27b	ASK 1786	Michoacán	N10		8 km N La Mira			
ASNHC	3232		*Heteromys*	*pictus*	27b	ASK 1787	Michoacán	N10		8 km N La Mira			
CMNH	103599		*Heteromys*	*pictus*	27b	ASK 1788	Michoacán	N10		8 km N La Mira			
ASNHC	4185		*Heteromys*	*pictus*	27b	ASK 1789	Michoacán	N10		8 km N La Mira			
ASNHC	4186		*Heteromys*	*pictus*	27b	ASK 1790	Michoacán	N10		8 km N La Mira			
ASNHC	4187		*Heteromys*	*pictus*	27b	ASK 1791	Michoacán	N10		8 km N La Mira			
ASNHC	4188		*Heteromys*	*pictus*	27b	ASK 1792	Michoacán	N10		8 km N La Mira			
ASNHC	4189		*Heteromys*	*pictus*	27b	ASK 1793	Michoacán	N10		8 km N La Mira			
CMNH	103603		*Heteromys*	*pictus*	27c	ASK 1794	Michoacán	N10		4 km N, 3 km W Playa Azul			
CMNH	103604		*Heteromys*	*pictus*	27c	ASK 1795	Michoacán	N10		4 km N, 3 km W Playa Azul			
			Heteromys	*pictus*	27c	ASK 1796	Michoacán	N10		4 km N, 3 km W Playa Azul			
			Heteromys	*pictus*	27c	ASK 1797	Michoacán	N10		4 km N, 3 km W Playa Azul			
			Heteromys	*pictus*	27c	ASK 1798	Michoacán	N10		4 km N, 3 km W Playa Azul			
ASNHC	4196		*Heteromys*	*pictus*	27c	ASK 1799	Michoacán	N10		4 km N, 3 km W Playa Azul			
CMNH	103602		*Heteromys*	*pictus*	27d	ASK 1801	Guerrero	N10		4 km N, 13 km W Playa Azul			
TCWC	42412		*Heteromys*	*spectabalis*	26d	AK 5884	Jalisco	N11		3 mi NE Contla			DQ168547
			Heteromys	*spectabalis*	26d	AK 5885	Jalisco	N11		3 mi NE Contla			
TCWC	42405		*Heteromys*	*spectabalis*	26d	AK 5894	Jalisco	N11		3 mi NE Contla			DQ168549
TCWC	42414		*Heteromys*	*spectabalis*	26d	AK 5901	Jalisco	N11		3 mi NE Contla			DQ168550
CMNH	103695		*Heteromys*	*spectabalis*	26a	ASK 1653	Jalisco	N11		11 km NE Contla			

			Heteromys	*spectabalis*	26a	ASK 1654	Jalisco	N11		11 km NE Contla			
			Heteromys	*spectabalis*	26a	ASK 1655	Jalisco	N11		11 km NE Contla			
			Heteromys	*spectabalis*	26a	ASK 1656	Jalisco	N11		11 km NE Contla			
			Heteromys	*spectabalis*	26a	ASK 1657	Jalisco	N11		11 km NE Contla			
CMNH	103697		*Heteromys*	*spectabalis*	26b	ASK 1821	Jalisco	N11		10 km NE Contla			
ASNHC	3340		*Heteromys*	*spectabalis*	26c	ASK 1822	Jalisco	N11		4 km NE Contla			
ASNHC	4212		*Heteromys*	*spectabalis*	26b	ASK 1824	Jalisco	N11		10 km NE Contla			
ASNHC	3338		*Heteromys*	*spectabalis*	26b	ASK 1825	Jalisco	N11		10 km NE Contla			
ASNHC	3339		*Heteromys*	*spectabalis*	26b	ASK 1828	Jalisco	N11		10 km NE Contla			
ASNHC	3336		*Heteromys*	*spectabalis*	26b	ASK 1842	Jalisco	N11		10 km NE Contla			
ASNHC	3337		*Heteromys*	*spectabalis*	26b	ASK 1843	Jalisco	N11		10 km NE Contla			
			Heteromys	*spectabilis*		DSR7707		N11					
TCWC	37055		*Heteromys*	*pictus*	36	AK 4196	Chiapas	N12		7.5 km SW Ixtapa	16.752 N	92.967 W	DQ168504
TCWC	37056		*Heteromys*	*pictus*	36	AK 4197	Chiapas	N12		7.5 km SW Ixtapa	16.752 N	92.967 W	DQ168505
TCWC	37057		*Heteromys*	*pictus*	36	AK 4198	Chiapas	N12		7.5 km SW Ixtapa	16.752 N	92.967 W	DQ168506
TCWC	37058		*Heteromys*	*pictus*	36	AK 4200	Chiapas	N12		7.5 km SW Ixtapa	16.752 N	92.967 W	DQ168507
			Heteromys	*pictus*	33b	DSR 7534	Oaxaca	N12		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563’ N	96˚27.729’ W	
			Heteromys	*pictus*		DSR8438		N12					
ROM	97689		*Heteromys*	*pictus*	35	FN 33170	Chiapas	N12		El Sumidero	16.750 N	93.067 W	

			Heteromys	*pictus*	37	QRS 216	Chiapas	N12		5 km NE (by rd.) Mazapa de Madero, 1,100 m	15˚23.558' N	92˚09.857' W	DQ168502
CMC	421		*Heteromys*	*pictus*	37	QRS 217	Chiapas	N12		5 km NE (by rd.) Mazapa de Madero, 1,100 m	15˚23.558' N	92˚09.857' W	DQ168503
			Heteromys	*pictus*	33c	DSR 7496	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
BYU	20834		*Heteromys*	*pictus*	33c	DSR 7497	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
BYU	20835		*Heteromys*	*pictus*	33c	DSR 7498	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
BYU	20836		*Heteromys*	*pictus*	33c	DSR 7499	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
CMC	1139		*Heteromys*	*pictus*	33c	DSR 7500	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	

BYU	20837		*Heteromys*	*pictus*	33c	DSR 7501	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
CMC	1141		*Heteromys*	*pictus*	33c	DSR 7502	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
CMC	1142		*Heteromys*	*pictus*	33c	DSR 7503	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
CMC	1143		*Heteromys*	*pictus*	33c	DSR 7504	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
CMC	1144		*Heteromys*	*pictus*	33c	DSR 7505	Oaxaca	N13		Rio Chacalapia, 23 km N (by rd.) Pochutla Mpio. Pochutla, 300 m	15˚53.515' N	96˚21.131' W	
			Heteromys	*pictus*	33a	DSR 7513	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	

BYU	20839		*Heteromys*	*pictus*	33a	DSR 7514	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20840		*Heteromys*	*pictus*	33a	DSR 7515	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20841		*Heteromys*	*pictus*	33a	DSR 7516	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20842		*Heteromys*	*pictus*	33a	DSR 7517	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20843		*Heteromys*	*pictus*	33a	DSR 7518	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20844		*Heteromys*	*pictus*	33a	DSR 7519	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
BYU	20845		*Heteromys*	*pictus*	33a	DSR 7520	Oaxaca	N13		20 km N (by rd.) Pochutla Mpio. Pochutla, 360 m	15˚52.940' N	96˚29.101' W	
			Heteromys	*pictus*	33b	DSR 7538	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	

			Heteromys	*pictus*	33b	DSR 7540	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
			Heteromys	*pictus*	33b	DSR 7542	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	1165		*Heteromys*	*pictus*	33b	DSR 7543	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
			Heteromys	*pictus*	33b	DSR 7545	Oaxaca	N13		12 km N (by rd.) Pochutla Mpio. Pochutla, 340 m	15˚50.563' N	96˚27.729' W	
CMC	904		*Heteromys*	*pictus*	32	FXG 656	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			
CMC	904		*Heteromys*	*pictus*	32	FXG 657	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			
CMC	904		*Heteromys*	*pictus*	32	FXG 658	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			

CMC	904		*Heteromys*	*pictus*	32	FXG 659	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			
CMC	904		*Heteromys*	*pictus*	32	FXG 660	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			
CMC	909		*Heteromys*	*pictus*	32	FXG 661	Oaxaca	N13	type loc annectens	Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m			
CMC	910		*Heteromys*	*pictus*	32	FXG 662	Oaxaca	N13		Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m	15° 57.935′ N	96° 27.448′ W	
CMC	911		*Heteromys*	*pictus*	32	FXG 663	Oaxaca	N13		Finca Copalita, Copalita Mpio. Pluma Hidalgo, Distrito Pochutla, 1025 m	15° 57.935′ N	96° 27.448′ W	

CMC	916		*Heteromys*	*pictus*	31	FXG 685	Oaxaca	N13		0.7 km E La Soledad (by rd.) Mpio. Candelaria Loxicha, Distrito Pochutla, 1489 m	15° 58.938′ N	96° 31.189′ W	
			Heteromys	*pictus*	31	FXG 686	Oaxaca	N13		0.7 km E La Soledad (by rd.) Mpio. Candelaria Loxicha, Distrito Pochutla, 1489 m	15° 58.938′ N	96° 31.189′ W	
TCWC	42251		*Heteromys*	*pictus*	6c	AK 5798	Nayarit	N14		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168518
TCWC	42252		*Heteromys*	*pictus*	6c	AK 5799	Nayarit	N14		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168519
TCWC	42253		*Heteromys*	*pictus*	6c	AK 5800	Nayarit	N14		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168520
			Heteromys	*pictus*	7a	ASK 1507	Nayarit	N14		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3301		*Heteromys*	*pictus*	7a	ASK 1527	Nayarit	N14		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3295		*Heteromys*	*pictus*	7b	ASK 1533	Nayarit	N14		22 km E San Blas	22.867 N	104.885 W	
CMNH	103686		*Heteromys*	*pictus*	4	ASK 1539	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
			Heteromys	*pictus*	4	ASK 1540	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
CMNH	103689		*Heteromys*	*pictus*	4	ASK 1542	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	4197		*Heteromys*	*pictus*	4	ASK 1543	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
			Heteromys	*pictus*	4	ASK 1544	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	4198		*Heteromys*	*pictus*	4	ASK 1545	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
			Heteromys	*pictus*	4	ASK 1546	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	

ASNHC	3236		*Heteromys*	*pictus*	4	ASK 1547	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
??			*Heteromys*	*pictus*	4	ASK 1548	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	4200		*Heteromys*	*pictus*	4	ASK 1549	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	3237		*Heteromys*	*pictus*	4	ASK 1550	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
			Heteromys	*pictus*	4	ASK 1551	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	3239		*Heteromys*	*pictus*	4	ASK 1552	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	3240		*Heteromys*	*pictus*	4	ASK 1553	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	4201		*Heteromys*	*pictus*	4	ASK 1554	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	3241		*Heteromys*	*pictus*	4	ASK 1555	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
??			*Heteromys*	*pictus*	4	ASK 1556	Nayarit	N14		6 km N Acaponeta	22.551 N	105.359 W	
ASNHC	3324		*Heteromys*	*pictus*	3	ASK 1557	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
ASNHC	3325		*Heteromys*	*pictus*	3	ASK 1558	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
CMNH	103694		*Heteromys*	*pictus*	3	ASK 1559	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
??			*Heteromys*	*pictus*	3	ASK 1560	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
ASNHC	3226		*Heteromys*	*pictus*	3	ASK 1561	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1562	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1563	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1564	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1565	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1566	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1571	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1572	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	

			Heteromys	*pictus*	3	ASK 1573	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1575	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
			Heteromys	*pictus*	3	ASK 1576	Sinaloa	N14	type loc escuinapae	10 km N Escuinapa	22.907 N	105.783 W	
??			*Heteromys*	*pictus*	5	ASK 1580	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
ASNHC	3319		*Heteromys*	*pictus*	5	ASK 1582	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
ASNHC	3320		*Heteromys*	*pictus*	5	ASK 1584	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
			Heteromys	*pictus*	5	ASK 1585	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
			Heteromys	*pictus*	5	ASK 1588	Nayarit	N14		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
BYU	15768		*Heteromys*	*pictus*	14	EA 584	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168521
BYU	15770		*Heteromys*	*pictus*	14	EA 586	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168522
BYU	15771		*Heteromys*	*pictus*	14	EA 587	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168523
BYU	15773		*Heteromys*	*pictus*	14	EA 589	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168524

BYU	15775		*Heteromys*	*pictus*	14	EA 609	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168525
BYU	15776		*Heteromys*	*pictus*	14	EA 610	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168526
BYU	15777		*Heteromys*	*pictus*	14	EA 611	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168527
BYU	15778		*Heteromys*	*pictus*	14	EA 612	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168528
BYU	15779		*Heteromys*	*pictus*	14	EA 613	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168529
BYU	15781		*Heteromys*	*pictus*	14	EA 615	Nayarit	N14		2 km N Chapalilla Mpio. Santa Maria del Oro, 1,020 m	21.1833 N	104.633 W	DQ168530
			Heteromys	*pictus*	13a	JEL 251	Nayarit	N14		2 km SE Ahuacatlan, 1,034 m	21˚01’28”N	104˚28’14” W	
			Heteromys	*pictus*	13b	JEL 253	Nayarit	N14		8 km W Ahuacatlan, 1,000 m	21˚04’02”N	104˚32’33” W	
TCWC	42226		*Heteromys*	*pictus*	6c	AK 5605	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168513
TCWC	42236		*Heteromys*	*pictus*	6c	AK 5615	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168514
			Heteromys	*pictus*	6c	AK 5616	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W	
TCWC	42240		*Heteromys*	*pictus*	6c	AK 5619	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168516

TCWC	42249		*Heteromys*	*pictus*	6c	AK 5796	Nayarit	N15		2.1 mi E Jalcocotán	21.467 N	105.084 W	DQ168517
CMNH	103637		*Heteromys*	*pictus*	7a	ASK 1500	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
CMNH	103638		*Heteromys*	*pictus*	7a	ASK 1501	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3296		*Heteromys*	*pictus*	7a	ASK 1502	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3297		*Heteromys*	*pictus*	7a	ASK 1503	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3298		*Heteromys*	*pictus*	7a	ASK 1504	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
			Heteromys	*pictus*	7a	ASK 1505	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3299		*Heteromys*	*pictus*	7a	ASK 1506	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
CMNH	103632		*Heteromys*	*pictus*	7b	ASK 1509	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
CMNH	103633		*Heteromys*	*pictus*	7b	ASK 1510	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
CMNH	103634		*Heteromys*	*pictus*	7b	ASK 1511	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
CMNH	103635		*Heteromys*	*pictus*	7b	ASK 1512	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
CMNH	103636		*Heteromys*	*pictus*	7b	ASK 1513	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
			Heteromys	*pictus*	7b	ASK 1514	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
NA			*Heteromys*	*pictus*	7b	ASK 1515	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
NA			*Heteromys*	*pictus*	7b	ASK 1516	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
ASNHC	3293		*Heteromys*	*pictus*	7b	ASK 1517	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
NA			*Heteromys*	*pictus*	7b	ASK 1518	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	

CMNH	103629		*Heteromys*	*pictus*	7c	ASK 1519	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
CMNH	103630		*Heteromys*	*pictus*	7c	ASK 1520	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
			Heteromys	*pictus*	7c	ASK 1521	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3284		*Heteromys*	*pictus*	7c	ASK 1522	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3285		*Heteromys*	*pictus*	7c	ASK 1523	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3286		*Heteromys*	*pictus*	7c	ASK 1524	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
			Heteromys	*pictus*	7c	ASK 1525	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3288		*Heteromys*	*pictus*	7c	ASK 1526	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3302		*Heteromys*	*pictus*	7a	ASK 1528	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
ASNHC	3303		*Heteromys*	*pictus*	7a	ASK 1529	Nayarit	N15		2 km S, 36 km E of San Blas	22.866 N	104.747 W	
			Heteromys	*pictus*	7b	ASK 1532	Nayarit	N15		22 km E San Blas	22.867 N	104.885 W	
ASNHC	3289		*Heteromys*	*pictus*	7c	ASK 1535	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
			Heteromys	*pictus*	7c	ASK 1536	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
ASNHC	3291		*Heteromys*	*pictus*	7c	ASK 1537	Nayarit	N15		8 km E San Blas	22.867 N	105.022 W	
CMNH	103646		*Heteromys*	*pictus*	5	ASK 1581	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
			Heteromys	*pictus*	5	ASK 1583	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
ASNHC	3322		*Heteromys*	*pictus*	5	ASK 1586	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	
??			*Heteromys*	*pictus*	5	ASK 1587	Nayarit	N15		4.8 km N, 8 km E Santiago	21.843 N	105.267 W	

CMNH	103625		*Heteromys*	*pictus*	11	ASK 1590	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
CMNH	103626		*Heteromys*	*pictus*	11	ASK 1591	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
CMNH	103627		*Heteromys*	*pictus*	11	ASK 1592	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
CMNH	103628		*Heteromys*	*pictus*	11	ASK 1593	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
ASNHC	3278		*Heteromys*	*pictus*	11	ASK 1594	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
			Heteromys	*pictus*	11	ASK 1595	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
ASNHC	3279		*Heteromys*	*pictus*	11	ASK 1596	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
NA			*Heteromys*	*pictus*	11	ASK 1597	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
ASNHC	3280		*Heteromys*	*pictus*	11	ASK 1598	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
ASNHC	3281		*Heteromys*	*pictus*	11	ASK 1599	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
			Heteromys	*pictus*	11	ASK 1602	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
NA			*Heteromys*	*pictus*	11	ASK 1603	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
ASNHC	3283		*Heteromys*	*pictus*	11	ASK 1604	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
NA			*Heteromys*	*pictus*	11	ASK 1605	Nayarit	N15		1.8 km N Penita de Jaltemba	21.050 N	105.25 W	
CMNH	103618		*Heteromys*	*pictus*	10	ASK 1606	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	

CMNH	103619		*Heteromys*	*pictus*	10	ASK 1607	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
CMNH	103620		*Heteromys*	*pictus*	10	ASK 1608	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
CMNH	103621		*Heteromys*	*pictus*	10	ASK 1609	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
			Heteromys	*pictus*	10	ASK 1610	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
CMNH	103622		*Heteromys*	*pictus*	10	ASK 1611	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
CMNH	103623		*Heteromys*	*pictus*	10	ASK 1612	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
CMNH	103624		*Heteromys*	*pictus*	10	ASK 1613	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1614	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3262		*Heteromys*	*pictus*	10	ASK 1615	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3263		*Heteromys*	*pictus*	10	ASK 1616	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3264		*Heteromys*	*pictus*	10	ASK 1617	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
			Heteromys	*pictus*	10	ASK 1618	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3265		*Heteromys*	*pictus*	10	ASK 1619	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1620	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3266		*Heteromys*	*pictus*	10	ASK 1621	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3267		*Heteromys*	*pictus*	10	ASK 1622	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3268		*Heteromys*	*pictus*	10	ASK 1623	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1624	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3269		*Heteromys*	*pictus*	10	ASK 1625	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3279		*Heteromys*	*pictus*	10	ASK 1626	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
			Heteromys	*pictus*	10	ASK 1627	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
			Heteromys	*pictus*	10	ASK 1627	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	

ASNHC	3272		*Heteromys*	*pictus*	10	ASK 1628	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
			Heteromys	*pictus*	10	ASK 1629	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3273		*Heteromys*	*pictus*	10	ASK 1630	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3274		*Heteromys*	*pictus*	10	ASK 1631	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3275		*Heteromys*	*pictus*	10	ASK 1632	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3276		*Heteromys*	*pictus*	10	ASK 1633	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA	3277		*Heteromys*	*pictus*	10	ASK 1634	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1635	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1636	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
NA			*Heteromys*	*pictus*	10	ASK 1637	Nayarit	N15		3.2 km SW Las Varas	21.146 N	105.189 W	
ASNHC	3304		*Heteromys*	*pictus*	8a	ASK 1658	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
			Heteromys	*pictus*	8a	ASK 1659	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
			Heteromys	*pictus*	8a	ASK 1660	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
CMNH	103641		*Heteromys*	*pictus*	8a	ASK 1661	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3305		*Heteromys*	*pictus*	8a	ASK 1662	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3306		*Heteromys*	*pictus*	8a	ASK 1663	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3307		*Heteromys*	*pictus*	8a	ASK 1664	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
NA			*Heteromys*	*pictus*	8a	ASK 1665	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	

ASNHC	3308		*Heteromys*	*pictus*	8a	ASK 1666	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3309		*Heteromys*	*pictus*	8a	ASK 1667	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3310		*Heteromys*	*pictus*	8a	ASK 1668	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
NA			*Heteromys*	*pictus*	8a	ASK 1669	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3312		*Heteromys*	*pictus*	8a	ASK 1671	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3313		*Heteromys*	*pictus*	8a	ASK 1672	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3314		*Heteromys*	*pictus*	8a	ASK 1673	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	3315		*Heteromys*	*pictus*	8a	ASK 1674	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	4208		*Heteromys*	*pictus*	8a	ASK 1675	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
CMNH	103642		*Heteromys*	*pictus*	8a	ASK 1676	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	4209		*Heteromys*	*pictus*	8a	ASK 1677	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	4210		*Heteromys*	*pictus*	8a	ASK 1678	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
ASNHC	4211		*Heteromys*	*pictus*	8a	ASK 1679	Nayarit	N15		4.4 km E Santa Cruz, by road	21.422 N	105.175 W	
CMNH	103643		*Heteromys*	*pictus*	8b	ASK 1680	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W	

CMNH	103644		*Heteromys*	*pictus*	8b	ASK 1681	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W	
ASNHC	3316		*Heteromys*	*pictus*	8b	ASK 1682	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W	
			Heteromys	*pictus*	8b	ASK 1683	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W	
ASNHC	3318		*Heteromys*	*pictus*	8b	ASK 1684	Nayarit	N15		10 km E Santa Cruz, by road	21.422 N	105.125 W	
CMNH	103614		*Heteromys*	*pictus*	6a	ASK 1685	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W	
CMNH	103615		*Heteromys*	*pictus*	6a	ASK 1686	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W	
CMNH	103692		*Heteromys*	*pictus*	6a	ASK 1687	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W	
			Heteromys	*pictus*	6a	ASK 1688	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W	
CMNH	103616		*Heteromys*	*pictus*	6a	ASK 1689	Nayarit	N15		5.5 km SW Jalcocotán	21.432 N	105.439 W	
CMNH	103610		*Heteromys*	*pictus*	6b	ASK 1690	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
CMNH	103611		*Heteromys*	*pictus*	6b	ASK 1691	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
			Heteromys	*pictus*	6b	ASK 1692	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3255		*Heteromys*	*pictus*	6b	ASK 1693	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
CMNH	103613		*Heteromys*	*pictus*	6b	ASK 1694	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
			Heteromys	*pictus*	6b	ASK 1695	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3257		*Heteromys*	*pictus*	6b	ASK 1696	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3258		*Heteromys*	*pictus*	6b	ASK 1697	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
	??		*Heteromys*	*pictus*	6b	ASK 1698	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3259		*Heteromys*	*pictus*	6b	ASK 1699	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3260		*Heteromys*	*pictus*	6b	ASK 1700	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	

			Heteromys	*pictus*	6b	ASK 1701	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
ASNHC	3261		*Heteromys*	*pictus*	6b	ASK 1702	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
	??		*Heteromys*	*pictus*	6b	ASK 1703	Nayarit	N15		4.6 km NE Jalcocotán	21.496 N	105.085 W	
CMNH	103690		*Heteromys*	*pictus*	9a	ASK 1711	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
CMNH	103606		*Heteromys*	*pictus*	9a	ASK 1712	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
CMNH	103607		*Heteromys*	*pictus*	9a	ASK 1713	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
			Heteromys	*pictus*	9a	ASK 1714	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
ASNHC	3242		*Heteromys*	*pictus*	9a	ASK 1715	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
ASNHC	3243		*Heteromys*	*pictus*	9a	ASK 1716	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
ASNHC	3244		*Heteromys*	*pictus*	9a	ASK 1717	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
ASNHC	3245		*Heteromys*	*pictus*	9a	ASK 1718	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
			Heteromys	*pictus*	9a	ASK 1719	Nayarit	N15	type loc hispidus	4 km SW Compostela	21.224 N	104.911 W	
ASNHC	3247		*Heteromys*	*pictus*	9b	ASK 1720	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3248		*Heteromys*	*pictus*	9b	ASK 1721	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3249		*Heteromys*	*pictus*	9b	ASK 1722	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3250		*Heteromys*	*pictus*	9b	ASK 1723	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3251		*Heteromys*	*pictus*	9b	ASK 1724	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
CMNH	103691		*Heteromys*	*pictus*	9b	ASK 1725	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
NA			*Heteromys*	*pictus*	9b	ASK 1731	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3252		*Heteromys*	*pictus*	9b	ASK 1732	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3252		*Heteromys*	*pictus*	9b	ASK 1733	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	
ASNHC	3252		*Heteromys*	*pictus*	9b	ASK 1734	Nayarit	N15		6 km SW Compostela	21.212 N	104.924 W	

CMC	1121		*Heteromys*	*pictus*	12	DSR 7384	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263' W	
			Heteromys	*pictus*	12	DSR 7385	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263' W	
			Heteromys	*pictus*	12	DSR 7415	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263' W	
BYU	20826		*Heteromys*	*pictus*	12	DSR 7424	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263' W	
			Heteromys	*pictus*	12	DSR 7425	Jalisco	N15	type loc pictus	3.4 km SW San Sebastián (by rd.) Mpio. San Sebastian del Oseste, 1,450 m	20˚46.146'N	104˚52.263' W	
TCWC	42402		*Heteromys*	*pictus*	26d	AK 5891	Jalisco	N16		3 mi NE Contla	19.781 N	103.051 W	DQ168508
TCWC	42403		*Heteromys*	*pictus*	26d	AK 5892	Jalisco	N16		3 mi NE Contla	19.781 N	103.051 W	DQ168509
CMNH	103580		*Heteromys*	*pictus*	24	ASK 1640	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
CMNH	103581		*Heteromys*	*pictus*	24	ASK 1641	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
			Heteromys	*pictus*	24	ASK 1642	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	

ASNHC	3208		*Heteromys*	*pictus*	24	ASK 1643	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3209		*Heteromys*	*pictus*	24	ASK 1644	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3210		*Heteromys*	*pictus*	24	ASK 1645	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3211		*Heteromys*	*pictus*	24	ASK 1646	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3212		*Heteromys*	*pictus*	24	ASK 1647	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3213		*Heteromys*	*pictus*	24	ASK 1648	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3214		*Heteromys*	*pictus*	24	ASK 1649	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3215		*Heteromys*	*pictus*	24	ASK 1650	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3216		*Heteromys*	*pictus*	24	ASK 1651	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
ASNHC	3217		*Heteromys*	*pictus*	24	ASK 1652	Jalisco	N16	type loc plantinarensis	1 km N Platanar	19.455 N	103.458 W	
CMNH	103658		*Heteromys*	*pictus*	PZC2	ASK 1735	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
CMNH	103659		*Heteromys*	*pictus*	PZC2	ASK 1736	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
CMNH	103660		*Heteromys*	*pictus*	PZC2	ASK 1737	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
CMNH	103661		*Heteromys*	*pictus*	PZC2	ASK 1738	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
NA			*Heteromys*	*pictus*	PZC2	ASK 1739	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
ASNHC	3124		*Heteromys*	*pictus*	PZC2	ASK 1740	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
NA			*Heteromys*	*pictus*	PZC2	ASK 1741	Colima	N16		3 km SE Colima	19.198 N	103.696 W	

NA			*Heteromys*	*pictus*	PZC2	ASK 1742	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
ASNHC	3125		*Heteromys*	*pictus*	PZC2	ASK 1743	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
NA			*Heteromys*	*pictus*	PZC2	ASK 1744	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
NA			*Heteromys*	*pictus*	PZC2	ASK 1745	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
ASNHC	3126		*Heteromys*	*pictus*	PZC2	ASK 1746	Colima	N16		3 km SE Colima	19.198 N	103.696 W	
CMNH	103662		*Heteromys*	*pictus*	20a	ASK 1810	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
CMNH	103663		*Heteromys*	*pictus*	20a	ASK 1811	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
CMNH	103664		*Heteromys*	*pictus*	20a	ASK 1812	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
CMNH	103665		*Heteromys*	*pictus*	20a	ASK 1813	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
ASNHC	3129		*Heteromys*	*pictus*	20a	ASK 1814	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
NA			*Heteromys*	*pictus*	20a	ASK 1815	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
ASNHC	3130		*Heteromys*	*pictus*	20a	ASK 1816	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
ASNHC	3131		*Heteromys*	*pictus*	20a	ASK 1817	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
ASNHC	3132		*Heteromys*	*pictus*	20a	ASK 1818	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
ASNHC	3133		*Heteromys*	*pictus*	20a	ASK 1819	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
NA			*Heteromys*	*pictus*	20a	ASK 1820	Colima	N16		10 km SE Colima	19.153 N	103.649 W	
			Heteromys	*pictus*	25	ASK 1823	Jalisco	N16		1 km SW of San Mames	19.577 N	103.323 W	
ASNHC	3206		*Heteromys*	*pictus*	26b	ASK 1827	Jalisco	N16		10 km NE Contla	19.814 N	103.016 W	
ASNHC	3207		*Heteromys*	*pictus*	26c	ASK 1829	Jalisco	N16		4 km NE Contla	19.279 N	103.056 W	
			Heteromys	*pictus*	25	ASK 1831	Jalisco	N16		1 km SW of San Mames	19.577 N	103.323 W	
NA			*Heteromys*	*pictus*	26c	ASK 1832	Jalisco	N16		4 km NE Contla	19.279 N	103.056 W	
			Heteromys	*pictus*	25	ASK 1833	Jalisco	N16		1 km SW of San Mames	19.577 N	103.323 W	

			Heteromys	*pictus*	20b	ASK 1833	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
ASNHC	3201		*Heteromys*	*pictus*	20b	ASK 1834	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
CMNH	103679		*Heteromys*	*pictus*	26b	ASK 1835	Jalisco	N16		10 km NE Contla	19.814 N	103.016 W	
ASNHC	3205		*Heteromys*	*pictus*	26b	ASK 1836	Jalisco	N16		10 km NE Contla	19.814 N	103.016 W	
CMNH	103678		*Heteromys*	*pictus*	20b	ASK 1837	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
NA			*Heteromys*	*pictus*	20b	ASK 1838	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
ASNHC	3199		*Heteromys*	*pictus*	20b	ASK 1839	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
NA			*Heteromys*	*pictus*	20b	ASK 1840	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
ASNHC	3203		*Heteromys*	*pictus*	20b	ASK 1841	Colima	N16		3 km E Tecuizitan	19.102 N	103.595 W	
NA			*Heteromys*	*pictus*	PZC14	ASK 1844	Colima	N16		3 km NE Tecuizitan	19.158 N	103.649 W	
NA			*Heteromys*	*pictus*	PZC14	ASK 1845	Colima	N16		3 km NE Tecuizitan	19.158 N	103.649 W	
CMNH	103666		*Heteromys*	*pictus*	PZC4	ASK 1846	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	3134		*Heteromys*	*pictus*	PZC4	ASK 1847	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
			Heteromys	*pictus*	PZC4	ASK 1848	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
NA			*Heteromys*	*pictus*	PZC4	ASK 1849	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	3136		*Heteromys*	*pictus*	PZC4	ASK 1850	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	3137		*Heteromys*	*pictus*	PZC4	ASK 1851	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	3138		*Heteromys*	*pictus*	PZC4	ASK 1852	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
CMNH	103667		*Heteromys*	*pictus*	PZC4	ASK 1853	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	4152		*Heteromys*	*pictus*	PZC4	ASK 1854	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	4153		*Heteromys*	*pictus*	PZC4	ASK 1855	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	4154		*Heteromys*	*pictus*	PZC4	ASK 1856	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	

ASNHC	4155		*Heteromys*	*pictus*	PZC4	ASK 1857	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
ASNHC	4156		*Heteromys*	*pictus*	PZC4	ASK 1858	Colima	N16		15 km SSW Colima	19.092 N	103.772 W	
CMNH	103684		*Heteromys*	*pictus*	PZC16	ASK 1880	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
CMNH	103685		*Heteromys*	*pictus*	PZC16	ASK 1881	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3220		*Heteromys*	*pictus*	PZC16	ASK 1882	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3221		*Heteromys*	*pictus*	PZC16	ASK 1883	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3222		*Heteromys*	*pictus*	PZC16	ASK 1884	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3223		*Heteromys*	*pictus*	PZC16	ASK 1885	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3224		*Heteromys*	*pictus*	PZC16	ASK 1886	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3225		*Heteromys*	*pictus*	PZC16	ASK 1887	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
			Heteromys	*pictus*	19a	ASK 1890	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
CMNH	103669		*Heteromys*	*pictus*	19a	ASK 1891	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
ASNHC	3139		*Heteromys*	*pictus*	19a	ASK 1892	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
ASNHC	3140		*Heteromys*	*pictus*	19a	ASK 1893	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
CMNH	103670		*Heteromys*	*pictus*	19a	ASK 1894	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
ASNHC	4157		*Heteromys*	*pictus*	19a	ASK 1895	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
ASNHC	4158		*Heteromys*	*pictus*	19a	ASK 1896	Colima	N16		22 km SSW Colima	19.033 N	103.797 W	
ASNHC	4177		*Heteromys*	*pictus*	PZC16	ASK 1897	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4178		*Heteromys*	*pictus*	PZC16	ASK 1898	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4179		*Heteromys*	*pictus*	PZC16	ASK 1899	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4180		*Heteromys*	*pictus*	PZC16	ASK 1900	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4181		*Heteromys*	*pictus*	PZC16	ASK 1901	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	

ASNHC	4182		*Heteromys*	*pictus*	PZC16	ASK 1902	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4183		*Heteromys*	*pictus*	PZC16	ASK 1903	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	4184		*Heteromys*	*pictus*	PZC16	ASK 1904	Jalisco	N16		2 km NE San Marcos	19.446 N	103.486 W	
ASNHC	3127		*Heteromys*	*pictus*	PZC3	ASK 1955	Colima	N16		El Mezquital, 4 km SSW Colima	19.183 N	103.731 W	
ASNHC	3128		*Heteromys*	*pictus*	PZC3	ASK 1956	Colima	N16		El Mezquital, 4 km SSW Colima	19.183 N	103.731 W	
CMNH	103647		*Heteromys*	*pictus*	PZC13	ASK 1958	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103648		*Heteromys*	*pictus*	PZC13	ASK 1959	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103649		*Heteromys*	*pictus*	PZC13	ASK 1960	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3088		*Heteromys*	*pictus*	PZC13	ASK 1974	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
NA			*Heteromys*	*pictus*	PZC13	ASK 1976	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
NA			*Heteromys*	*pictus*	PZC13	ASK 1977	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3148		*Heteromys*	*pictus*	PZC18	ASK 1984	Colima	N16		6 km S Cuauhtemoc	19.279 N	103.600 W	
ASNHC	3149		*Heteromys*	*pictus*	PZC18	ASK 1985	Colima	N16		6 km S Cuauhtemoc	19.279 N	103.600 W	
ASNHC	3070		*Heteromys*	*pictus*	PZC1	ASK 1987	Colima	N16		11 km NW Alzada	19.314 N	103.584 W	
ASNHC	3080		*Heteromys*	*pictus*	PZC13	ASK 2013	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103554		*Heteromys*	*pictus*	PZC13	ASK 2018	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	

ASNHC	4146		*Heteromys*	*pictus*	PZC13	ASK 2020	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3090		*Heteromys*	*pictus*	PZC13	ASK 2022	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3091		*Heteromys*	*pictus*	PZC13	ASK 2023	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3092		*Heteromys*	*pictus*	PZC13	ASK 2024	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3093		*Heteromys*	*pictus*	PZC13	ASK 2025	Colima	N16		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3071		*Heteromys*	*pictus*	21	ASK 2033	Colima	N16		5 km S Alzada	19.205 N	103.517 W	
ASNHC	3072		*Heteromys*	*pictus*	21	ASK 2034	Colima	N16		5 km S Alzada	19.205 N	103.517 W	
NA			*Heteromys*	*pictus*	21	ASK 2035	Colima	N16		5 km S Alzada	19.205 N	103.517 W	
NA			*Heteromys*	*pictus*	PZC7	ASK 2049	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
ASNHC	3109		*Heteromys*	*pictus*	PZC7	ASK 2050	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
ASNHC	3110		*Heteromys*	*pictus*	PZC7	ASK 2051	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
ASNHC	3111		*Heteromys*	*pictus*	PZC7	ASK 2052	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
CMNH	103652		*Heteromys*	*pictus*	PZC7	ASK 2053	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
CMNH	103653		*Heteromys*	*pictus*	PZC7	ASK 2054	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
ASNHC	3108		*Heteromys*	*pictus*	PZC7	ASK 2056	Colima	N16		17 km NW Colima	19.325 N	103.832 W	
ASNHC	3118		*Heteromys*	*pictus*	PZC5	ASK 2058	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
CMNH	103655		*Heteromys*	*pictus*	PZC5	ASK 2059	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
CMNH	103656		*Heteromys*	*pictus*	PZC5	ASK 2060	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
CMNH	103657		*Heteromys*	*pictus*	PZC5	ASK 2061	Colima	N16		8 km NW Colima	19.267 N	103.771 W	

ASNHC	3119		*Heteromys*	*pictus*	PZC5	ASK 2063	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
ASNHC	3120		*Heteromys*	*pictus*	PZC5	ASK 2064	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
ASNHC	3121		*Heteromys*	*pictus*	PZC5	ASK 2065	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
ASNHC	3122		*Heteromys*	*pictus*	PZC5	ASK 2066	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
ASNHC	3123		*Heteromys*	*pictus*	PZC5	ASK 2067	Colima	N16		8 km NW Colima	19.267 N	103.771 W	
CMNH	103650		*Heteromys*	*pictus*	PZC8	ASK 2069	Colima	N16		22 km NW Colima	19.357 N	103.865 W	
CMNH	103651		*Heteromys*	*pictus*	PZC8	ASK 2070	Colima	N16		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3104		*Heteromys*	*pictus*	PZC8	ASK 2074	Colima	N16		22 km NW Colima	19.357 N	103.865 W	
CMNH	103654		*Heteromys*	*pictus*	PZC6	ASK 2081	Colima	N16		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3112		*Heteromys*	*pictus*	PZC6	ASK 2082	Colima	N16		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3113		*Heteromys*	*pictus*	PZC6	ASK 2083	Colima	N16		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3115		*Heteromys*	*pictus*	PZC6	ASK 2085	Colima	N16		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3117		*Heteromys*	*pictus*	PZC6	ASK 2087	Colima	N16		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3097		*Heteromys*	*pictus*	PZC10	ASK 2099	Colima	N16		31 km NW Colima	19.414 N	103.926 W	
NA			*Heteromys*	*pictus*	19b	ASK 2110	Colima	N16		22 km SSW Colima	18.991 N	103.815 W	
CMNH	103671		*Heteromys*	*pictus*	19b	ASK 2111	Colima	N16		22 km SSW Colima	18.991 N	103.815 W	
ASNHC	3141		*Heteromys*	*pictus*	19b	ASK 2112	Colima	N16		22 km SSW Colima	18.991 N	103.815 W	
ASNHC	3142		*Heteromys*	*pictus*	19b	ASK 2113	Colima	N16		22 km SSW Colima	18.991 N	103.815 W	
ASNHC	3143		*Heteromys*	*pictus*	19b	ASK 2114	Colima	N16		22 km SSW Colima	18.991 N	103.815 W	

CMNH	103673		*Heteromys*	*pictus*	19c	ASK 2115	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
CMNH	103672		*Heteromys*	*pictus*	19c	ASK 2116	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
ASNHC	3144		*Heteromys*	*pictus*	19c	ASK 2117	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
ASNHC	3145		*Heteromys*	*pictus*	19c	ASK 2118	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
ASNHC	3146		*Heteromys*	*pictus*	19c	ASK 2119	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
ASNHC	3147		*Heteromys*	*pictus*	19c	ASK 2120	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
NA			*Heteromys*	*pictus*	19c	ASK 2121	Colima	N16		33.5 km SSW Colima	18.937 N	103.839 W	
NA			*Heteromys*	*pictus*	PZC15	ASK 2143	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103574		*Heteromys*	*pictus*	PZC15	ASK 2145	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103575		*Heteromys*	*pictus*	PZC15	ASK 2150	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3160		*Heteromys*	*pictus*	PZC15	ASK 2152	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3166		*Heteromys*	*pictus*	PZC15	ASK 2175	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3167		*Heteromys*	*pictus*	PZC15	ASK 2176	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3169		*Heteromys*	*pictus*	PZC15	ASK 2179	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3173		*Heteromys*	*pictus*	PZC15	ASK 2183	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3176		*Heteromys*	*pictus*	PZC15	ASK 2186	Colima	N16		30 km NNE Manzanillo	19.284 N	104.207 W	
CNMA	28194		*Heteromys*	*pictus*	26e	CLM 34	Jalisco	N16		Rancho Laurel, 1.5 l m S Contla, Mpio Tamazula de Gordiano, 1,200 m	19.750 N	103.083 W	DQ168511

CNMA	28198		*Heteromys*	*pictus*	26e	CLM 38	Jalisco	N16		Rancho Laurel, 1.5 l m S Contla, Mpio Tamazula de Gordiano, 1,200 m	19.750 N	103.083 W	DQ168510
			Heteromys	*pictus*	PZC17	ASK 1867	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103592		*Heteromys*	*pictus*	PZC17	ASK 1868	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103593		*Heteromys*	*pictus*	PZC17	ASK 1869	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103594		*Heteromys*	*pictus*	PZC17	ASK 1870	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103595		*Heteromys*	*pictus*	PZC17	ASK 1871	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103596		*Heteromys*	*pictus*	PZC17	ASK 1872	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
ASNHC	3226		*Heteromys*	*pictus*	PZC17	ASK 1873	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
ASNHC	3227		*Heteromys*	*pictus*	PZC17	ASK 1874	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
NA			*Heteromys*	*pictus*	PZC17	ASK 1875	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
ASNHC	3228		*Heteromys*	*pictus*	PZC17	ASK 1876	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
ASNHC	3229		*Heteromys*	*pictus*	PZC17	ASK 1877	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
NA			*Heteromys*	*pictus*	PZC17	ASK 1878	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
CMNH	103683		*Heteromys*	*pictus*	PZC17	ASK 1879	Jalisco	N17		5 km WS San Marcos	19.401 N	103.533 W	
ASNHC	3189		*Heteromys*	*pictus*	23a	ASK 1919	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	3190		*Heteromys*	*pictus*	23a	ASK 1920	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
CMNH	103579		*Heteromys*	*pictus*	23a	ASK 1921	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
CMNH	103580		*Heteromys*	*pictus*	23a	ASK 1922	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	3191		*Heteromys*	*pictus*	23a	ASK 1925	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	

NA			*Heteromys*	*pictus*	23a	ASK 1926	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	4168		*Heteromys*	*pictus*	23a	ASK 1927	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	4169		*Heteromys*	*pictus*	23a	ASK 1928	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
CMNH	103586		*Heteromys*	*pictus*	23a	ASK 1929	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
CMNH	103587		*Heteromys*	*pictus*	23a	ASK 1930	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	4170		*Heteromys*	*pictus*	23a	ASK 1931	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	4171		*Heteromys*	*pictus*	23a	ASK 1932	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
ASNHC	4172		*Heteromys*	*pictus*	23a	ASK 1933	Colima	N17		5.5 km W Quuseria	19.367 N	103.665 W	
CMNH 103567			*Heteromys*	*pictus*	22	ASK 1934	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
NA			*Heteromys*	*pictus*	22	ASK 1935	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	3157		*Heteromys*	*pictus*	22	ASK 1936	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	3158		*Heteromys*	*pictus*	22	ASK 1937	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	3159		*Heteromys*	*pictus*	22	ASK 1938	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	4163		*Heteromys*	*pictus*	22	ASK 1939	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	4164		*Heteromys*	*pictus*	22	ASK 1940	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
ASNHC	4165		*Heteromys*	*pictus*	22	ASK 1941	Colima	N17		Hacienda San Antonio	19.429 N	103.758 W	
CMNH	103578		*Heteromys*	*pictus*	23b	ASK 1942	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3181		*Heteromys*	*pictus*	23b	ASK 1943	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3182		*Heteromys*	*pictus*	23b	ASK 1944	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3183		*Heteromys*	*pictus*	23b	ASK 1945	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3184		*Heteromys*	*pictus*	23b	ASK 1946	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3185		*Heteromys*	*pictus*	23b	ASK 1947	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	

ASNHC	3186		*Heteromys*	*pictus*	23b	ASK 1948	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
NA			*Heteromys*	*pictus*	23b	ASK 1949	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3187		*Heteromys*	*pictus*	23b	ASK 1950	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
ASNHC	3188		*Heteromys*	*pictus*	23b	ASK 1951	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
CMNH	103575		*Heteromys*	*pictus*	23b	ASK 1952	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
CMNH	103576		*Heteromys*	*pictus*	23b	ASK 1953	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
			Heteromys	*pictus*	23b	ASK 1954	Colima	N17		8.5 km W Queseria	19.367 N	103.636 W	
CMNH	103541		*Heteromys*	*pictus*	PZC13	ASK 1961	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103542		*Heteromys*	*pictus*	PZC13	ASK 1962	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103543		*Heteromys*	*pictus*	PZC13	ASK 1963	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103544		*Heteromys*	*pictus*	PZC13	ASK 1964	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103545		*Heteromys*	*pictus*	PZC13	ASK 1965	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103546		*Heteromys*	*pictus*	PZC13	ASK 1966	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103547		*Heteromys*	*pictus*	PZC13	ASK 1967	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3082		*Heteromys*	*pictus*	PZC13	ASK 1968	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3083		*Heteromys*	*pictus*	PZC13	ASK 1969	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3084		*Heteromys*	*pictus*	PZC13	ASK 1970	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	

ASNHC	3085		*Heteromys*	*pictus*	PZC13	ASK 1971	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3086		*Heteromys*	*pictus*	PZC13	ASK 1972	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3087		*Heteromys*	*pictus*	PZC13	ASK 1973	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
NA			*Heteromys*	*pictus*	PZC13	ASK 1975	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103548		*Heteromys*	*pictus*	PZC13	ASK 1978	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103549		*Heteromys*	*pictus*	PZC13	ASK 1979	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103550		*Heteromys*	*pictus*	PZC13	ASK 1980	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103551		*Heteromys*	*pictus*	PZC13	ASK 1981	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103552		*Heteromys*	*pictus*	PZC13	ASK 1982	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103561		*Heteromys*	*pictus*	PZC18	ASK 1983	Colima	N17		6 km S Cuauhtemoc	19.279 N	103.600 W	
ASNHC	3069		*Heteromys*	*pictus*	PZC1	ASK 1986	Colima	N17		10 km NW Alzada	19.314 N	103.584 W	
ASNHC	3073		*Heteromys*	*pictus*	PZC13	ASK 2001	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3074		*Heteromys*	*pictus*	PZC13	ASK 2002	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3075		*Heteromys*	*pictus*	PZC13	ASK 2003	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3076		*Heteromys*	*pictus*	PZC13	ASK 2004	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	

ASNHC	3077		*Heteromys*	*pictus*	PZC13	ASK 2005	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3078		*Heteromys*	*pictus*	PZC13	ASK 2006	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3079		*Heteromys*	*pictus*	PZC13	ASK 2007	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4138		*Heteromys*	*pictus*	PZC13	ASK 2008	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4139		*Heteromys*	*pictus*	PZC13	ASK 2009	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4140		*Heteromys*	*pictus*	PZC13	ASK 2010	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4141		*Heteromys*	*pictus*	PZC13	ASK 2011	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4142		*Heteromys*	*pictus*	PZC13	ASK 2012	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3081		*Heteromys*	*pictus*	PZC13	ASK 2014	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4143		*Heteromys*	*pictus*	PZC13	ASK 2015	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4144		*Heteromys*	*pictus*	PZC13	ASK 2016	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	4145		*Heteromys*	*pictus*	PZC13	ASK 2019	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3089		*Heteromys*	*pictus*	PZC13	ASK 2021	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
ASNHC	3094		*Heteromys*	*pictus*	PZC13	ASK 2026	Colima	N17		Puente Colima, 2 km NW Chiapa	19.329 N	103.647 W	
CMNH	103564		*Heteromys*	*pictus*	PZC12	ASK 2037	Colima	N17		El Cabano	19.333 N	103.658 W	

CMNH	103565		*Heteromys*	*pictus*	PZC12	ASK 2038	Colima	N17		El Cabano	19.333 N	103.658 W	
CMNH	103566		*Heteromys*	*pictus*	PZC12	ASK 2039	Colima	N17		El Cabano	19.333 N	103.658 W	
NA			*Heteromys*	*pictus*	PZC12	ASK 2040	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	3153		*Heteromys*	*pictus*	PZC12	ASK 2041	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	3154		*Heteromys*	*pictus*	PZC12	ASK 2042	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	3156		*Heteromys*	*pictus*	PZC12	ASK 2044	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	4160		*Heteromys*	*pictus*	PZC12	ASK 2045	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	4161		*Heteromys*	*pictus*	PZC12	ASK 2046	Colima	N17		El Cabano	19.333 N	103.658 W	
ASNHC	4162		*Heteromys*	*pictus*	PZC12	ASK 2047	Colima	N17		El Cabano	19.333 N	103.658 W	
			Heteromys	*pictus*	PZC12	ASK 2048	Colima	N17		El Cabano	19.333 N	103.658 W	
CMNH	103557		*Heteromys*	*pictus*	PZC7	ASK 2055	Colima	N17		17 km NW Colima	19.325 N	103.832 W	
CMNH	103560		*Heteromys*	*pictus*	PZC5	ASK 2062	Colima	N17		8 km NW Colima	19.267 N	103.771 W	
CMNH	103556		*Heteromys*	*pictus*	PZC8	ASK 2068	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3101		*Heteromys*	*pictus*	PZC8	ASK 2071	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3102		*Heteromys*	*pictus*	PZC8	ASK 2072	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3103		*Heteromys*	*pictus*	PZC8	ASK 2073	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3105		*Heteromys*	*pictus*	PZC8	ASK 2075	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3106		*Heteromys*	*pictus*	PZC8	ASK 2076	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
ASNHC	3107		*Heteromys*	*pictus*	PZC8	ASK 2077	Colima	N17		22 km NW Colima	19.357 N	103.865 W	
			Heteromys	*pictus*	PZC6	ASK 2079	Colima	N17		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
CMNH	103559		*Heteromys*	*pictus*	PZC6	ASK 2080	Colima	N17		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	

ASNHC	3114		*Heteromys*	*pictus*	PZC6	ASK 2084	Colima	N17		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
ASNHC	3116		*Heteromys*	*pictus*	PZC6	ASK 2086	Colima	N17		Rio Armeria, 13 km NW Colima	19.300 N	103.805 W	
CMNH	103555		*Heteromys*	*pictus*	PZC9	ASK 2088	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	3098		*Heteromys*	*pictus*	PZC9	ASK 2089	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
NA			*Heteromys*	*pictus*	PZC9	ASK 2090	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
NA			*Heteromys*	*pictus*	PZC9	ASK 2091	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	3099		*Heteromys*	*pictus*	PZC9	ASK 2092	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	3100		*Heteromys*	*pictus*	PZC9	ASK 2093	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	4147		*Heteromys*	*pictus*	PZC9	ASK 2094	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	4148		*Heteromys*	*pictus*	PZC9	ASK 2095	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	4149		*Heteromys*	*pictus*	PZC9	ASK 2096	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	4150		*Heteromys*	*pictus*	PZC9	ASK 2097	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	4151		*Heteromys*	*pictus*	PZC9	ASK 2098	Colima	N17		29.5 km NW Colima	19.405 N	103.916 W	
ASNHC	3095		*Heteromys*	*pictus*	PZC11	ASK 2100	Colima	N17		34 km NW Colima	19.434 N	103.947 W	
ASNHC	3096		*Heteromys*	*pictus*	PZC11	ASK 2101	Colima	N17		34 km NW Colima	19.434 N	103.947 W	
CMNH	103588		*Heteromys*	*pictus*	18c	ASK 2105	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W	
CMNH	103589		*Heteromys*	*pictus*	18c	ASK 2106	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W	
ASNHC	3196		*Heteromys*	*pictus*	18c	ASK 2107	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W	
ASNHC	3197		*Heteromys*	*pictus*	18c	ASK 2108	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W	
ASNHC	3198		*Heteromys*	*pictus*	18c	ASK 2109	Colima	N17		8 km NNE Tecoman	19.017 N	103.854 W	
CMNH	103562		*Heteromys*	*pictus*	17	ASK 2125	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W	

CMNH	103563		*Heteromys*	*pictus*	17	ASK 2126	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W	
ASNHC	3150		*Heteromys*	*pictus*	17	ASK 2127	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W	
ASNHC	3151		*Heteromys*	*pictus*	17	ASK 2128	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W	
ASNHC	3152		*Heteromys*	*pictus*	17	ASK 2129	Colima	N17		7 km NE Cuyutlan	19.045 N	104.119 W	
ASNHC	3193		*Heteromys*	*pictus*	18a	ASK 2130	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
ASNHC	3194		*Heteromys*	*pictus*	18a	ASK 2131	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
ASNHC	3195		*Heteromys*	*pictus*	18a	ASK 2132	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
NA			*Heteromys*	*pictus*	18a	ASK 2133	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
ASNHC	4173		*Heteromys*	*pictus*	18a	ASK 2134	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
ASNHC	4173		*Heteromys*	*pictus*	18a	ASK 2135	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
ASNHC	4173		*Heteromys*	*pictus*	18a	ASK 2136	Colima	N17		4.7 km S Rincón de Lopez	19.008 N	103.917 W	
CMNH	103584		*Heteromys*	*pictus*	18b	ASK 2137	Colima	N17		2.4 km S Rincón de Lopez	19.028 N	103.805 W	
			Heteromys	*pictus*	18b	ASK 2138	Colima	N17		2.4 km S Rincón de Lopez	19.028 N	103.805 W	
ASNHC	3192		*Heteromys*	*pictus*	18b	ASK 2139	Colima	N17		2.4 km S Rincón de Lopez	19.028 N	103.805 W	
NA			*Heteromys*	*pictus*	PZC15	ASK 2142	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103568		*Heteromys*	*pictus*	PZC15	ASK 2144	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103569		*Heteromys*	*pictus*	PZC15	ASK 2146	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	

CMNH	103570		*Heteromys*	*pictus*	PZC15	ASK 2147	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103571		*Heteromys*	*pictus*	PZC15	ASK 2148	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103572		*Heteromys*	*pictus*	PZC15	ASK 2149	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103573		*Heteromys*	*pictus*	PZC15	ASK 2151	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3178		*Heteromys*	*pictus*	PZC15	ASK 2153	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3162		*Heteromys*	*pictus*	PZC15	ASK 2154	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
CMNH	103574		*Heteromys*	*pictus*	16	ASK 2155	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	3178		*Heteromys*	*pictus*	16	ASK 2156	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	3179		*Heteromys*	*pictus*	16	ASK 2157	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	3180		*Heteromys*	*pictus*	16	ASK 2158	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
NA			*Heteromys*	*pictus*	16	ASK 2159	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
CMNH	103582		*Heteromys*	*pictus*	16	ASK 2160	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
CMNH	103583		*Heteromys*	*pictus*	16	ASK 2161	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	4166		*Heteromys*	*pictus*	16	ASK 2162	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	4167		*Heteromys*	*pictus*	16	ASK 2163	Colima	N17		18 km NNE Manzanillo	19.183 N	104.251 W	
ASNHC	3164		*Heteromys*	*pictus*	PZC15	ASK 2173	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3165		*Heteromys*	*pictus*	PZC15	ASK 2174	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
NA			*Heteromys*	*pictus*	PZC15	ASK 2177	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3168		*Heteromys*	*pictus*	PZC15	ASK 2178	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3170		*Heteromys*	*pictus*	PZC15	ASK 2180	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3171		*Heteromys*	*pictus*	PZC15	ASK 2181	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3172		*Heteromys*	*pictus*	PZC15	ASK 2182	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	

ASNHC	3174		*Heteromys*	*pictus*	PZC15	ASK 2184	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3175		*Heteromys*	*pictus*	PZC15	ASK 2185	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3177		*Heteromys*	*pictus*	PZC15	ASK 2187	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
ASNHC	3163		*Heteromys*	*pictus*	PZC15	ASK 2188	Colima	N17		30 km NNE Manzanillo	19.284 N	104.207 W	
			Heteromys	*anomalus*		AK 3436							
			Heteromys	*irroratus*		AK 4335							
			Heteromys	*irroratus*		AK 4339							
			Heteromys	*desmarestianus*		AK 7555							
			Heteromys	*nelsoni*		DSR 7181							

Appendix 4-Total *Cytb* samples (720) with haplotypes highlighted and nuDNA success rates

				nuDNA Sequencing			
Name (and equivalent *Cytb* sequences)	Network	Locality	Do samples come from different localities (within the haplotype)?	*Bfib*	*PRKCI*	*IRBP*	*CD14*
ASK1776	N1	27a					
FXG303	N2	38					
FXG304=	N2	38					
FXG308[1]	N2	38					
FXG308[1]	N2	38					
DSR7460=	N3	30	No				
DSR7462	N3	30					
DSR7463	N3	30					
DSR7466	N3	30					
DSR7467	N3	30					
DSR7468	N3	30					
DSR7461=	N3	30	No				
DSR7465	N3	30					
DSR7464	N3	30					
AK5596	N4	1					
AK11725	N4	1					
AK11750	N4	1					
LVT1253	N4	1					
DSR7531	N5	33b					
DSR7533	N5	33b					
DSR7535	N5	33b					
DSR7536=	N5	33b	No				
DSR7544	N5	33b					
DSR7547	N5	33b					
DSR7537=	N5	33b	No				
DSR7546	N5	33b					
DSR7539	N5	33b					
DSR7541	N5	33b					

ASK1726	N6	15					
ASK1727	N6	15					
ASK1728	N6	15					
ASK1729	N6	15					
ASK1730	N6	15					
RCD4008=	N7	28	No				
RCD4009	N7	28					
RCD4011	N7	28					
RCD4012	N7	28					
RCD4014	N7	28					
RCD4015	N7	28					
RCD4017	N7	28					
RCD4020	N7	28					
RCD4023	N7	28					
RCD4025	N7	28					
RCD4010=	N7	28	No				
RCD4026	N7	28					
RCD4013	N7	28					
RCD4016=	N7	28	No				
RCD4018	N7	28					
RCD4019=	N7	28	No				
RCD4021	N7	28					
RCD4024	N7	28					
RCD4027	N7	28					
RCD4029	N7	28					
RCD4030	N7	28					
RCD4022	N7	28					
RCD4028	N7	28					
CLM252=	N8	34	No				
FN29916	N8	34					
FN29920	N8	34					
FN29901	N8	34					
FN29902=	N8	34	No				
FN29915	N8	34					
FN29911	N8	34					
FN29912	N8	34					
FN29913	N8	34					
FN29914	N8	34					

FN29917	N8	34					
FN29918	N8	34					
FN29919	N8	34					
FN29949	N8	34					
FXG769=	N9	29a	No				
FXG770	N9	29a					
FXG771	N9	29a					
FXG772=	N9	29a	No				
FXG773	N9	29a					
FXG775	N9	29a					
FXG774=	N9	29a	No				
FXG776	N9	29a					
FXG777	N9	29a					
FXG796=	N9	29b	No				
FXG798	N9	29b					
FXG801	N9	29b					
FXG797	N9	29b					
FXG799	N9	29b					
FXG800	N9	29b					
FXG802	N9	29b					
ASK1771=	N10	27a	Yes				
ASK1772	N10	27a					
ASK1773	N10	27a					
ASK1774	N10	27a					
ASK1775	N10	27a					
ASK1778	N10	27a					
ASK1779	N10	27a					
ASK1780	N10	27a					
ASK1781	N10	27b					
ASK1782	N10	27b					
ASK1784	N10	27b					
ASK1785	N10	27b					
ASK1786	N10	27b					
ASK1787	N10	27b					
ASK1788	N10	27b					
ASK1790	N10	27b					
ASK1791	N10	27b					
ASK1792	N10	27b					

ASK1795	N10	27c					
ASK1796	N10	27c					
ASK1797	N10	27c					
ASK1798	N10	27c					
ASK1777	N10	27a					
ASK1783	N10	27b					
ASK1789=	N10	27b	Yes				
ASK1799[2]	N10	27c					
ASK1793	N10	27b					
ASK1794	N10	27c					
ASK1799[2]	N10	27c					
ASK1801	N10	27d					
AK5884 (*H. spectabilis*)=	N11	26d	Yes				
AK5894	N11	26d					
AK5901	N11	26d					
ASK1653	N11	26a					
ASK1654	N11	26a					
ASK1655	N11	26a					
ASK1656	N11	26a					
ASK1657	N11	26a					
ASK1821	N11	26b					
ASK1822	N11	26b					
ASK1824	N11	26b					
ASK1825	N11	26b					
ASK1828	N11	26b					
ASK1842	N11	26b					
ASK1843	N11	26b					
AK5885 (*H. spectabilis*)	N11	26d					
DSR7707 (*H. spectabilis*)	N11	?					
AK4196=	N12	36	No				
AK4197	N12	36					
AK4198	N12	36					
AK4200	N12	36					
DSR7534	N12	33b					
DSR8438	N12	?					

FN33170	N12	35					
QRS216=	N12	37	No				
QRS217	N12	37					
DSR7496=	N13	33c	Yes				
DSR7517	N13	33a					
DSR7497=	N13	33c	Yes				
DSR7502	N13	33c					
DSR7513	N13	33a					
DSR7515	N13	33a					
DSR7516	N13	33a					
DSR7518	N13	33a					
DSR7519	N13	33a					
FXG686	N13	31					
DSR7498	N13	33c					
DSR7499=	N13	33c	Yes				
FXG656	N13	32					
FXG657	N13	32					
FXG660	N13	32					
DSR7500	N13	33c					
DSR7501	N13	33c					
DSR7503	N13	33c					
DSR7504	N13	33c					
DSR7505	N13	33c					
DSR7514=	N13	33a	No				
DSR7520	N13	33a					
DSR7538=	N13	33b	No				
DSR7543	N13	33b					
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FXG661	N13	32					
FXG662	N13	32					
FXG663	N13	32					
FXG685	N13	31					
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ASK1533	N14	7b					

AK5799	N14	6c					
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ASK1539	N14	4					
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ASK1575	N14	3					
ASK1576	N14	3					

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ASK1582	N14	5					
ASK1584	N14	5					
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EA613	N14	14					
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ASK1664	N15	8a					
ASK1665	N15	8a					
ASK1673	N15	8a					
ASK1677	N15	8a					
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ASK1693	N15	6b					
ASK1695	N15	6b					
ASK1697	N15	6b					
ASK1698	N15	6b					
ASK1700	N15	6b					
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AK5619=	N15	6c	Yes				
AK5796	N15	6c					
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ASK1672	N15	8a					
ASK1676	N15	8a					
ASK1681	N15	8b					

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ASK1684	N15	8b					
ASK1687	N15	6a					
ASK1690	N15	6b					
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ASK1501=	N15	7a	Yes				
ASK1503	N15	7a					
ASK1506	N15	7a					
ASK1512	N15	7b					
ASK1515	N15	7b					
ASK1516	N15	7b					
ASK1522	N15	7c					
ASK1528	N15	7a					
ASK1529	N15	7a					
ASK1699	N15	6b					
ASK1702	N15	6b					
ASK1502=	N15	7a	Yes				
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ASK1509=	N15	7b	No				
ASK1510	N15	7b					
ASK1511	N15	7b					
ASK1513	N15	7b					
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ASK1514	N15	7b					
ASK1517	N15	7b					
ASK1519	N15	7c					
ASK1520	N15	7c					
ASK1521=	N15	7c	Yes				
ASK1587	N15	5					
ASK1523=	N15	7c	Yes				
ASK1526	N15	7c					
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ASK1524=	N15	7c	No				
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ASK1598	N15	11					
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ASK1675	N15	8a					
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ASK1720	N15	9b					
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ASK1668=	N15	8a	Yes	[redacted]			
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ASK1715	N15	9a					
ASK1719	N15	9a					
ASK1712	N15	9a					
ASK1713	N15	9a					
ASK1714=	N15	9a	Yes				
ASK1716	N15	9a					
ASK1718	N15	9a					
ASK1721	N15	9b					
ASK1724	N15	9b					
ASK1731	N15	9b					
ASK1733	N15	9b					
ASK1717	N15	9a					
ASK1722	N15	9b					
ASK1723	N15	9b					
ASK1732	N15	9b					
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DSR7425	N15	12					
DSR7385	N15	12					
DSR7424	N15	12					
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AK5892	N16	26d					
ASK1827	N16	26b					
ASK1829	N16	26c					
ASK1836	N16	26b					
ASK1640=	N16	24	Yes				
ASK1641	N16	24					
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ASK1880	N16	PZC16					
ASK1883	N16	PZC16					
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ASK1886	N16	PZC16					
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ASK1904	N16	PZC16					
ASK1642=	N16	24	No				

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ASK1643=	N16	24	No			
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ASK1652	N16	24				
ASK1645=	N16	24	No			
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ASK1745	N16	PZC2				
ASK1746	N16	PZC2				
ASK1844	N16	PZC14				
ASK1958	N16	PZC13				
ASK1959	N16	PZC13				
ASK1960	N16	PZC13				
ASK1976	N16	PZC13				
ASK1977	N16	PZC13				
ASK1984	N16	PZC18				
ASK2013	N16	PZC13				
ASK2020	N16	PZC13				
ASK2022	N16	PZC13				
ASK2023	N16	PZC13				
ASK2024	N16	PZC13				
ASK2025	N16	PZC13				
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ASK2069	N16	PZC8				
ASK2143	N16	PZC15				
ASK2145	N16	PZC15				
ASK2150	N16	PZC15				
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ASK2176	N16	PZC15				

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ASK1743	N16	PZC2		[redacted]			
ASK1744	N16	PZC2		[redacted]			
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ASK1831=	N16	25	Yes	[redacted]			
ASK1832	N16	26c					[redacted]
ASK1834=	N16	20b	Yes	[redacted]			
ASK1838	N16	20b					[redacted]
ASK1956	N16	PZC3					[redacted]
ASK1835	N16	26b					[redacted]

ASK1839	N16	20b					
ASK1840	N16	20b					
ASK1846=	N16	PZC4	Yes				
ASK1852	N16	PZC4					
ASK2061	N16	PZC5					
ASK2067	N16	PZC5					
ASK1849	N16	PZC4					
ASK1850=	N16	PZC4	Yes				
ASK1855	N16	PZC4					
ASK2112	N16	19b					
ASK2119	N16	19c					
ASK1853=	N16	PZC4	Yes				
ASK1854	N16	PZC4					
ASK2118	N16	19c					
ASK1857=	N16	PZC4	Yes				
ASK2113	N16	19b					
ASK2114	N16	19c					
ASK2115	N16	19c					
ASK2087	N16	PZC6					
ASK1858	N16	PZC4					
ASK1881	N16	PZC16					
ASK1882	N16	PZC16					
ASK1887=	N16	PZC16	No				
ASK1898	N16	PZC16					
ASK1900	N16	PZC16					
ASK1901	N16	PZC16					
ASK1890=	N16	19a	No				
ASK1892	N16	19a					
ASK1895	N16	19a					
ASK1891	N16	19a					
ASK1894	N16	19a					
ASK1896=	N16	19a	Yes				
ASK2110	N16	19b					
ASK1897	N16	PZC16					
ASK1902	N16	PZC16					
ASK1955	N16	PZC3					
ASK1974	N16	PZC13					
ASK1985=	N16	PZC18	Yes				

ASK1987	N16	PZC1					
ASK2033	N16	21					
ASK2035	N16	21					
ASK2049=	N16	PZC7	No				
ASK2052	N16	PZC7					
ASK2054	N16	PZC7					
ASK2050=	N16	PZC7	Yes				
ASK2099	N16	PZC10					
ASK2053	N16	PZC7					
ASK2056	N16	PZC7					
ASK2058	N16	PZC7					
ASK2063=	N16	PZC5	Yes				
ASK2065	N16	PZC5					
ASK2081	N16	PZC6					
ASK2082	N16	PZC6					
ASK2083	N16	PZC6					
ASK2085	N16	PZC6					
ASK2087	N16	PZC6					
ASK2064	N16	PZC5					
ASK2066	N16	PZC5					
ASK2070	N16	PZC8					
ASK2074	N16	PZC8					
ASK2111	N16	19b					
ASK2116	N16	19c					
ASK2117	N16	19c					
ASK2121	N16	19c					
ASK2175	N16	PZC15					
CLM34	N16	26e					
CLM38=	N16	26e	Yes				
ASK1823	N16	25					
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ASK1871	N17	PZC17					
ASK1874	N17	PZC17					
ASK1876	N17	PZC17					
ASK1921	N17	23a					
ASK1925	N17	23a					
ASK1926	N17	23a					
ASK1933	N17	23a					

ASK1983	N17	PZC18					
ASK1868=	N17	PZC17	Yes				
ASK1878	N17	PZC17					
ASK2018	N17	PZC13					
ASK2037	N17	PZC12					
ASK2038	N17	PZC12					
ASK2146	N17	PZC15					
ASK2148	N17	PZC15					
ASK2155	N17	16					
ASK2161	N17	16					
ASK1869=	N17	PZC17					
ASK1870=	N17	PZC17	Yes				
ASK1873	N17	PZC17					
ASK1877	N17	PZC17					
ASK1920	N17	23a					
ASK1929	N17	23a					
ASK1952	N17	23b					
ASK1953[5]	N17	23b					
ASK1872=	N17	PZC17	Yes				
ASK1875	N17	PZC17					
ASK1919	N17	23a					
ASK1928	N17	23a					
ASK1951	N17	23b					
ASK1922=	N17	23a	Yes				
ASK1931	N17	23a					
ASK1949	N17	23b					
ASK1986	N17	PZC1					
ASK1927=	N17	23a	Yes				
ASK1940	N17	22					
ASK2019	N17	PZC13					
ASK1930	N17	23a					
ASK1932=	N17	23a	Yes				
ASK1942	N17	23b					
ASK1934=	N17	23a	Yes				
ASK1935	N17	22					
ASK1936=	N17	22	Yes				
ASK1938	N17	22					

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ASK2016	N17	PZC13					
ASK1937	N17	22					
ASK1939	N17	22					
ASK1943=	N17	23b	No	[redacted]			
ASK1945	N17	23b					
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ASK1953[5]	N17	23b					
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ASK2002	N17	PZC13		[redacted]			
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ASK1963=	N17	PZC13	Yes				
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ASK1968	N17	PZC13		[redacted]			
ASK1972	N17	PZC13					
ASK1978	N17	PZC13					
ASK1979	N17	PZC13					
ASK1982	N17	PZC13					
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ASK2009	N17	PZC13					
ASK2012	N17	PZC13					
ASK2021	N17	PZC13					
ASK2047	N17	PZC12					
ASK2048	N17	PZC12					
ASK1964=	N17	PZC13	No				
ASK1966	N17	PZC13					
ASK1965=	N17	PZC13	Yes				
ASK1969	N17	PZC13		[redacted]			

ASK1970	N17	PZC13		[redacted]			
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ASK1981	N17	PZC13					
ASK2003	N17	PZC13					
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ASK2001	N17	PZC13					
ASK2005	N17	PZC13					
ASK2011	N17	PZC13					
ASK2015=	N17	PZC13	Yes				
ASK2042	N17	PZC12					
ASK2039=	N17	PZC12	No				
ASK2040	N17	PZC12					
ASK2044	N17	PZC12					
ASK2045	N17	PZC12					
ASK2046	N17	PZC12					
ASK2055=	N17	PZC7	Yes				
ASK2077[6]	N17	PZC8					
ASK2072	N17	PZC8					
ASK2062=	N17	PZC5	Yes				
ASK2139	N17	18b					
ASK2068	N17	PZC8					
ASK2071	N17	PZC8					
ASK2073	N17	PZC8					
ASK2075=	N17	PZC8	Yes				

ASK2089	N17	PZC9					
ASK2092	N17	PZC9					
ASK2093	N17	PZC9					
ASK2095	N17	PZC9					
ASK2101	N17	PZC11					
ASK2076=	N17	PZC8	Yes				
ASK2088	N17	PZC9					
ASK2090	N17	PZC9					
ASK2091	N17	PZC9					
ASK2094	N17	PZC9					
ASK2096	N17	PZC9					
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ASK2077[6]	N17	PZC8					
ASK2079	N17	PZC6					
ASK2080	N17	PZC6					
ASK2084=	N17	PZC6	No				
ASK2086	N17	PZC6					
ASK2100	N17	PZC11					
ASK2105=	N17	18c	Yes				
ASK2109	N17	18c					
ASK2129	N17	17					
ASK2106=	N17	18c	Yes				
ASK2108	N17	18c					
ASK2126	N17	17					
ASK2128	N17	17					
ASK2131	N17	18a					
ASK2132	N17	18a					
ASK2107	N17	18c					
ASK2125	N17	17					
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ASK2133	N17	18a					
ASK2134=	N17	18a	No				
ASK2135	N17	18a					
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ASK2137=	N17	18b	Yes				

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ASK2142	N17	PZC15					
ASK2144	N17	PZC15					
ASK2147=	N17	PZC15	No				
ASK2154	N17	PZC15					
ASK2149	N17	PZC15					
ASK2151	N17	PZC15					
ASK2153	N17	PZC15					
ASK2156	N17	16					
ASK2157=	N17	16	No				
ASK2162	N17	16					
ASK2158	N17	16					
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ASK2160	N17	16					
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ASK2173	N17	PZC15					
ASK2174	N17	PZC15					
ASK2177	N17	PZC15					
ASK2178	N17	PZC15					
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ASK2181	N17	PZC15					
ASK2184	N17	PZC15					
ASK2185	N17	PZC15					
ASK2187	N17	PZC15					
ASK2188	N17	PZC15					
OUTGROUPS							
AK4339 (*H. irroratus*)=	*N/A*	*N/A*	*N/A*				
AK4335	*N/A*	*N/A*	*N/A*				
AK3436 (*H. anomalus*)	*N/A*	*N/A*	*N/A*				
AK7555 (*H. desmarestianus*)	*N/A*	*N/A*	*N/A*				
DSR7181 (*H. nelsoni*)	*N/A*	*N/A*	*N/A*				

[#]=Sample that was part of the *Cytb* selection tree but was identical to another sample also used (listed beneath matching sample name)
Grey box= unique haplotype group (including matching samples beneath)
Black box= not sequenced for nuclear gene in question

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