Distributional extension of *Molossops neglectus* (Chiroptera, Molossidae) into southeastern Brazil

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Although Freeman (1981) and Koopman (1993) included up to four subgenera (*Cynomops, Molossops,
Cabreraeops, and Neoplatypus*) within Molossops, there is strong morphological, chromosomal, and
molecular data that suggests these four taxa are separate divergent lineages worthy of full generic status
(Peters et al. 2002). Within *Molossops* sensu stricto, there are two well-defined species, *M. temminckii*
and *M. neglectus*. The former species is relatively common and has a broad geographic distribution
in South America, occurring from Colombia and Venezuela in the north to Peru, Bolivia, Paraguay,
Argentine, Uruguay, and Brazil in the south
(Koopman 1993). More recently, this species has
been documented from Guyana (Parker et al.
1993) and Ecuador (Reid et al. 2000). *Molossops
neglectus* is slightly more enigmatic having only
been described 20 years ago (Williams and
Genoways 1980). This species was known to
come in northern South America from Surinam,
northern Brazil, and northern Peru (Ascorra et al.
1991). Recently, it has been recorded from eastern
Venezuela (Ochoa et al. 1993), Guyana, and
southern Colombia (Lim & Engstrom 2001).
There was also a disjunct population reported
from Parque Nacional Iguazu in Misiones,
Argentina (Barquez et al. 1993, 1999). Prior to
this study, only 28 specimens of *M. neglectus* were
known (Lim & Engstrom 2001).

A study of the molossid bats deposited at the
Museu de Zoologia, Universidade de Sao Paulo,
and recent collecting in the state of Sao Paulo has
revealed the presence of *Molossops neglectus* in
southeastern Brazil. This represents a major range
extension for this species, which was previously
known only from scattered localities in Amazonia
and extreme northeastern Argentina. Herein, we
provide some quantitative comparisons between
*M. neglectus* and *M. temminckii*, and discuss sexual
dimorphism and geographic variation between
Atlantic Forest and Amazonian populations.

Examined material are or will be housed at the
Museu de Zoologia, Universidade de Sao Paulo,
Sao Paulo (MZUSP), Laboratório de Chiroptera,
Universidade Estadual Paulista, Sao Jose do Rio
Preto (DZSJRP), Royal Ontario Museum, Toronto
(ROM), and United States National Museum of
Natural History, Smithsonian Institution,
Washington, DC (USNM). Recently collected
material from Caetetus Ecological Station has
their field numbers (F) reported pending their
eventual deposition in one of the institutions
listed previously. Most specimens are in alcohol,
with their skulls removed, and some are dry skins
with skulls or skeletons. Data for the examined
material includes (if available) country, state,
collecting locality (with latitude and longitude),
catalogue number, sex, collectors, and date
collected (Fig. 1).

The following seven standard cranial and external
measurements (abbreviations in parentheses)
were recorded: length of forearm (FAL); greatest
length of skull (GLS); condylo-incisive length
(LCI); breadth of braincase (BBC); breadth
across upper molars (BUM); length of maxillary
toothrow (LMT); and length of mandible (LMA).
Ascorra et al. (1991) furnished a detailed descrip-
tion of the distribution of *M. neglectus*, known at
that time to occur at only four localities; near
Powaika in northern Surinam (type locality),
Belém in northern Brazil, and Oxapampa and
Requena, central and northern Peru, respectively
(Fig. 1). Since then, it has been reported from
Imataca Forest Reserve in eastern Venezuela
(Ochoa et al. 1993), Puerto Leguizamo in southern
Colombia, and three localities in Guyana (Lim &
Engstrom 2001). Recently, Barquez et al. (1993,
1999) reported a range extension to the northern
border of the province of Misiones in northeastern
Argentina. Other than the type locality, which
was savannah with secondary forest (Williams &
Genoways 1980), subsequent records show that
the species primarily inhabits forested regions:
Amazonian rainforest in northern South America
and semi-deciduous forest in northern Argentina.

With our records, *Molossops neglectus* is now
known from southeastern Brazil, some six hun-
dred kilometres northeast of the previously
known locality in Argentina. In Brazil, the species
also is found in forested habitats, occurring in the
humid coastal Atlantic forest (Paulo de Frontin
and Salesopolis) and drier semi-deciduous interior
forest (Caetetus and Itu), all in the southeastern
uplands. Apparently, *Molossops neglectus* is absent
in the large, open areas of southeastern South
America, such as the drier Cerrado, Caatinga and
Chaco, and the wetter Pantanal.

*Molossops neglectus* is distinguished from its sister
species, *M. temminckii*, by dark brown dorsal
hairs with the bases distinctly white, slightly
darker ventral pelage, and larger size. There is
only slight overlap in size between the two species
with MZUSP 5847 having a small condylo-incis-
ive length and breadth across upper molars
(Table 1). Within *M. neglectus*, Ascorra et al.
(1991) compared the sexes and concluded that
the species is sexually dimorphic with males larger than females. This was also true for specimens from Venezuela (Ochoa et al. 1993) and Guyana (Lim and Engstrom 2001). For our specimens from southeastern Brazil, females average slightly smaller with no overlap in two of the measurements. For *M. neglectus*, the three adult males reported herein from southeastern Brazil are much smaller than males from Guyana, with only 1 of 7 measurements overlapping, and they are also slightly smaller than females from Guyana (Table 1).

The female from southeastern Brazil averages smaller than specimens from Guyana and there is no overlap in range for four measurements. Based on our limited sample size and known sexual dimorphism in *N. neglectus*, we considered this difference in body size between populations from the Atlantic Forest and those in Amazonia to represent either extreme geographic variation within a single species, or two distinct allopatric species. Morphological, chromosomal, and molecular differences need to be analysed in a phylogenetic context.
before taxonomic changes can be recommended. A similar distributional disjunction was found between Vampyressa p. pusilla and V. p. thyone, and analysis of diverse data sets warranted their separation into two species (Lim et al. 2003). The only previous documentation of M. neglectus in Brazil was based on a juvenile male from the Amazonian forest of Belém (Ascorra et al. 1991). Although there were no comparisons with M. temminckii, given the geographic variation in M. neglectus, verification of the species identification of the previously reported juvenile specimen from Belém was problematic. The specimens recorded herein of M. neglectus from the state of São Paulo were directly compared with those of M. temminckii from the same state, and corroborated the specific status of each and the confirmation of the juvenile specimen from Belém as M. neglectus (five) improve the collections in museums by adding to the previously known 28 specimens (Lim & Engstrom 2001).

Acknowledgements
We would like to thank Mario de Vivo and Alfred L. Gardner for permission to study specimens housed in the collections under their care and Mark D. Engstrom for commenting on an earlier draft of the manuscript. This work was supported by Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP, processes 01/10292-1 and 98/5075-7 (Programa Biota, RG), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq, process 522235/94-8, VAT), and the ROM Foundation (BKL). This is contribution number 260 from the Centre for Biodiversity and Conservation Biology, Royal Ontario Museum and number 1515 from the Departamento de Zoologia, universidade de Parana.

REFERENCES

TABLE 1. — Measurements taken from specimens of Molossops neglectus from southeastern Brazil. Data from M. temminckii are furnished for comparison. For abbreviations of measurements, see the text. Age: Ad, Adult; SA, Subadult; Juv, Juvenile.

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>FAL</th>
<th>GLS</th>
<th>LCI</th>
<th>BBC</th>
<th>BUM</th>
<th>LMT</th>
<th>LMA</th>
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<tr>
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<td>1♂</td>
<td>34.9</td>
<td>14.2</td>
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<td>6.6</td>
<td>5.6</td>
<td>5.2</td>
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<td>36.7</td>
<td>15.8</td>
<td>14.3</td>
<td>7.8</td>
<td>6.4</td>
<td>5.6</td>
<td>11.2</td>
</tr>
<tr>
<td>M. neglectus</td>
<td>1♂</td>
<td>36.9</td>
<td>16.4</td>
<td>15.6</td>
<td>-</td>
<td>7.1</td>
<td>6.1</td>
<td>12.2</td>
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<tr>
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<td>36.6</td>
<td>16.6</td>
<td>15.6</td>
<td>8.2</td>
<td>7.4</td>
<td>5.9</td>
<td>12.7</td>
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<td>36.0</td>
<td>15.5</td>
<td>14.8</td>
<td>8.2</td>
<td>7.2</td>
<td>5.9</td>
<td>12.0</td>
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<tr>
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<td>35.1</td>
<td>17.1</td>
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<tr>
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<td>36.0-39.0</td>
<td>16.7-17.9</td>
<td>15.7-16.8</td>
<td>8.0-8.4</td>
<td>7.5-8.0</td>
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<td>11.5-12.5</td>
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<tr>
<td>M. temminckii</td>
<td>8♂♀</td>
<td>30.3 ± 1.33</td>
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<td>13.5 ± 0.34</td>
<td>7.2 ± 0.1</td>
<td>5.18 ± 0.11</td>
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<td>30.0 ± 0.49</td>
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</table>

1MZUSP 15410; 2MZUSP 5847; 3MZUSP 15411; 4F66102; 5F46079; 6Measurements taken from the original description of the holotype (Williams and Genoways, 1980); 7For specimens from Guyana reported in Lim and Engstrom (2001); 8Samples from Northwestern São Paulo (DZSJRP 2989, 3247, 3248, 3278, 3279, 3294, 3307, 3308, 10942, 10943, 12497, 16501, 16619, 16719, and 16764); 9For specimens from Ecuador reported in Reid et al. (2000).
Distibution extension of Molossops neglectus in Brazil


