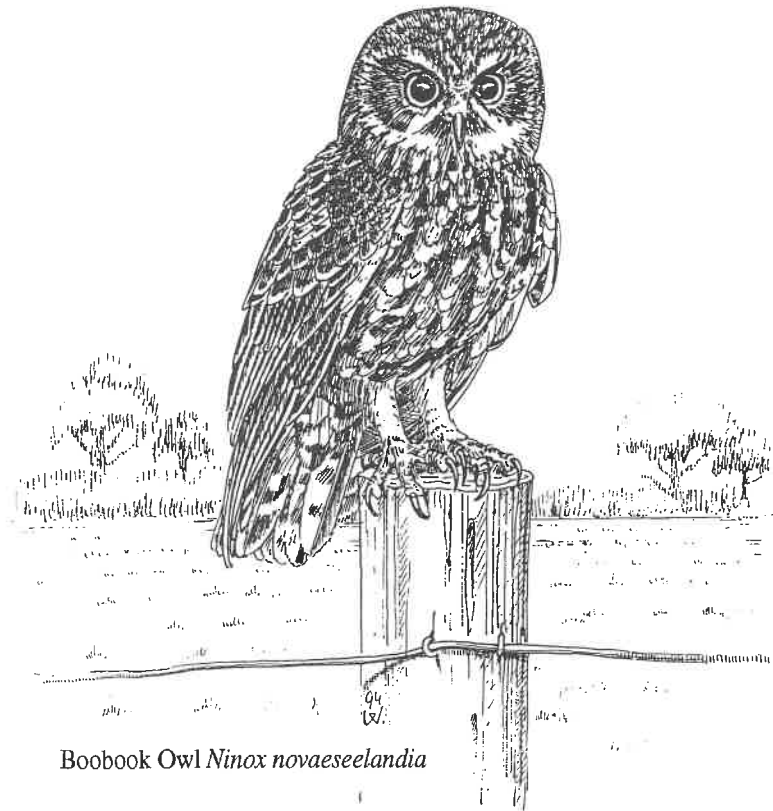


## Part 8

# The Biology of Extirpated, Rare or Lesser-known Owls



Boobook Owl *Ninox novaeseelandia*

Conveners:

Dr. R. J. Clark & Dr. H. Mikkola

# The Distribution of Mexican Owls

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## ABSTRACT

Mexico is rich in owl species, in spite of which knowledge about them is poor, including even their distribution. Data on 3,434 specimens in 47 national and foreign museums were compiled. Also a thorough revision of the literature was undertaken, to provide a unified picture. Twenty-eight species occur in Mexico, more than in any other country north of the equator. Four are widely distributed in the American continent. Out of the 12 tropical species, six are endangered, four are vulnerable and two maintain an apparently stable population. In Mexican law, only three are listed as endangered, one endemic and two subendemic. The Ferruginous Pygmy Owl *Glaucidium brasilianum* has been the species most collected.

The one endemic species - the Balsas Screech-owl *Otus seductus* - had only three specimens collected. Oaxaca and Michoacan were the states with greatest species richness (19) as opposed to Aguascalientes, with only two. There is controversy over the distribution range of several species, whilst another undergoes continuous taxonomic changes; these make the unification of information difficult. Important data from two principal museums have not been obtained; this might reinforce or alter our conclusions.

## INTRODUCTION

Currently there are 162 known species of owls in the world (Amadon Bull 1988), 28 (17%) of which occur in Mexico, considerably more than among northern forest owls (22) (Norberg 1987) and North American species (19) (Johnsgard 1988).

Owls in Mexico have received little attention and most of the literature is old (Ridgway 1895; Kelso 1936; Moore 1937 a,b, 1941, 1947 a,b; Moore & Peters 1939; Alvarez del Toro 1949; Briggs 1954; Moore & Marshall 1959; Buchanan 1964; Northern 1965; Houston 1966). Generally, most Mexican owl species have not been fully described and their distribution is not clearly defined. Unfortunately, what is known of the latter is controversial. We present the current distribution and most up-to-date literature covering Mexican Owls.

## STUDY AREA AND METHODS

Mexico (2 million km) has 32 states (Fig. 1). Its 32 different vegetation types (Rzedowski 1986), geographic location and complex topography provide a rich biological diversity of fauna

and flora. More than 50% of the land mass lies 1,000m above sea level (Ramos 1985). We obtained data on specimens from 47 museums, visiting or sending questionnaires to 36 foreign and 11 national museums (Appendix 1). In addition, we reviewed the existing literature for information about Mexican owls.

Based on these data, we drew range maps for each species. Taxonomy followed that of Amadon and Bull (1988).

**Figure 1. Map of México showing 32 states dividing the country.**



## RESULTS

### *Common Barn Owl*

### *Tyto alba*

125 specimens from 30 states recorded from museum data. Friedman *et al.* (1950) also reported Barn Owls from Hidalgo and Quintana Roo. Recently, we have also recorded Barn Owls from Quintana Roo. Paynter (1955) and Hartig (1979) did not report this species from the Yucatan Peninsula. Blake (1972) and Grossman and Hamlet (1988) considered Barn Owls to be widely distributed throughout the country. This is the most widely distributed owl in Mexico. (Fig. 2,a).

### *Flammulated Owl*

### *Otus flammeolus*

76 specimens from 15 states recorded. Additionally, it has been reported by Ridgway (1914), Friedman *et al.* (1950) and Blake (1972) for Distrito Federal, and A.O.U. (1983) mentioned it as occurring in Nuevo León. (Fig. 2,b).

### *Eastern Screech Owl*

### *Otus asio*

150 specimens from 18 states recorded. Its distribution is restricted to north-eastern and southern Mexico, as confirmed by Marshall (1967) and Rowley (1984). However, some museum data reported its presence in western Mexico. (Fig. 2,c)

### *Western Screech Owl*

### *Otus kennicottii*

117 specimens recorded from 13 states. There is much confusion about this species and its subspecific distribution due to taxonomic variations (Marshall 1967). Our data do not agree with Blake (1972), who reported this species in the states of Querétaro and Hidalgo. Its current distribution is north and south-western Mexico and Baja Peninsula. (Fig. 2,d).

### *Balsas Screech Owl*

### *Otus seductus*

Only 3 specimens from the state of Michoacán recorded. Marshall (1967), Peterson and Chalif (1973) and A.O.U. (1983) also report it for Colima and Guerrero. This is the only endemic Mexican owl species, currently found only in the south-west. (Fig. 2,e).

*Pacific Screech Owl*

*Otus cooperi*

26 from 6 states recorded. It seems to be resident only along the Pacific slope in south-western Mexico. (Fig. 2,e).

*Whiskered Screech Owl*

*Otus trichopsis*

186 specimens from 20 states recorded, only from museum data. It has a wide distribution excluding both peninsulas. However, Davis (1972), A.O.U. (1983) and Eckert (1987) consider it to occur in Hidalgo and Puebla. (Fig. 2,g)

*Bearded Screech Owl*

*Otus barbarus*

Only 9 specimens recorded, all from Chiapas. Ridgway (1914) mentioned its occurrence south across the border in the highlands of Guatemala. It has the most restricted distribution of any Mexican owl. (Fig. 2,h).

*Vermiculated Screech Owl*

*Otus guatemalae*

101 specimens from 16 states recorded. Although mentioned by Friedman *et al.* (1950), Paynter (1955), Storer (1961) and Davis (1972) as occurring in Campeche, no specimens could be located there. There is the only species of genus *Otus* found in the Yucatan Peninsula. (Fig. 2,i).

*Crested Owl*

*Lophotrix cristata*

21 specimens from 4 states recorded. Although Grossman and Hamlet (1988) list its distribution as extending into the Yucatan Peninsula, we could not confirm this, so have not included it in the distribution maps. This species occurs in southern Mexico. (Fig. 2,j).

*Spectacled Owl*

*Pulsatrix perspicillata*

28 specimens from 3 states recorded. This species is also restricted to southern Mexico and its occurrence in the Yucatan Peninsula (Grossman & Hamlet 1988) is doubtful. (Fig. 2,k).

*Great Horned Owl*

*Bubo virginianus*

213 specimens from 26 states recorded. Brodkob (1943) mentioned it for the state of Tabasco, although no specimen exists. As its present distribution covers almost the entire country, this is quite likely to be so. (Fig. 2,l).

*Mottled Owl*

*Ciccaba virgata*

368 specimens from 22 states recorded. It has a wide distribution, but not as yet reported from Baja Peninsula and north-central Mexico. The museum data and the literature seem to agree on its distribution. (Fig. 2,m).

*Black and White Owl*

*Ciccaba nigrolineata*

45 specimens from 5 states recorded. Our museum data agree with the published literature (Ridgway 1914; Friedman *et al.* 1950; Blake 1972; Davis 1972; Peterson & Chalif 1973; A.O.U. 1983; Edwards 1989). Although Grossman and Hamlet (1988) did not report this species for the Yucatan Peninsula, Paynter (1955) cited one specimen from Quintana Roo. We also have additional data for that state. Its distribution appears to be fragmented; further surveys are needed. (Fig. 2,n).

*Barred Owl*

*Strix varia*

34 specimens from 8 states recorded. Some literature (Ridgway 1914; Peters 1940; Friedman *et al.* 1950; Davis 1972; A.O.U. 1983) included Puebla. However, there were no museum specimen data. Alvarez del Toro (1980) did not include Chiapas in this species' distribution, although we located 6 specimens (HMCZ No. 272862, USNM No. 193875, WFWCZ No. 19724, No. 12473, No. 1247 and No. 4853). (Fig. 2,o).

*Fulvous Owl*

*Strix fulvescens*

Four specimens from 3 states recorded from museum data. Alvarez del Toro (1980) observed this species in the cloud forest. We located only one specimen from cloud forest, identified as *Strix varia fulvescens* (LACM-NH No. 24392). Binford (1989) did not list it in Oaxaca, where we located two specimens (COIB No. DGFS 4575, No. 4576). Friedman *et al.* (1950) reported it for the state of Mexico, but no specimens were collected. (Fig. 2,p).

*Spotted Owl*

*Strix occidentalis*

26 specimens from 8 states recorded from museum data. Although Ridgway (1914), A.O.U.

(1983), Edwards (1989) and Peterson and Chalif (1989) report this species as occurring for Baja Peninsula, there are no specimen data. Its distribution is fragmented. (Fig. 2,q).

*Northern Pygmy Owl*

*Glaucidium gnoma*

176 specimens from 24 states recorded. Ridgway (1914) and Friedman *et al.* (1950) reported it for Colima and Distrito Federal, but did not collect it. It has a wide distribution, but has yet to be found in the Yucatan Peninsula. (Fig. 2,r).

*Least Pygmy Owl*

*Glaucidium minutissimum*

138 from 13 states recorded. The distribution data agree with Davis (1972) and Peterson and Chalif (1989). It has yet to be reported from either peninsula, north-central or mid-central Mexico. (Fig. 2,s).

*Ferruginous Pygmy Owl*

*Glaucidium brasilianum*

1,038 specimens from 23 states recorded. This is the highest number of specimens collected for any Mexican owl species. It has yet to be recorded from the Baja Peninsula. Although reported for Distrito Federal (Friedman *et al.* 1950) and Coahuila (A.O.U. 1983; Eckert 1987), there are no museum specimens from these areas. (Fig. 2,t).

*Elf Owl*

*Micrathene whitneyi*

163 from 16 states recorded. Included are the Revillagigedo Island group in the Pacific Ocean. Peters (1940) and Blake (1972) reported it from the state of Mexico, and Grossman and Hamlet (1988) reported it from Tamaulipas. However, no museum specimens exist. This species does not occur in southern Mexico or the Yucatan Peninsula. (Fig. 2,u).

*Burrowing Owl*

*Speotyto cunicularia*

256 specimens from 26 states recorded. This species has a wide distribution and is reported to occur across the entire country (Grossman Hamlet 1988). (Fig. 2,v).

*Northern Saw-Whet Owl*

*Aegolius acadicus*

23 specimens from 11 states recorded. It occurs in north-central and central Mexico, but in neither peninsula. Ridgway (1914), Friedman *et al.* (1950), Blake (1972) and Davis (1972) reported it from Chihuahua, Jalisco and Veracruz. (Fig. 2,w).

*Unspotted Saw-Whet Owl*

*Aegolius ridgwayi*

Five specimens only from Chiapas. We and others (Moore 1947b; Alvarez del Toro 1980; Davis 1972; Peterson & Chalif 1973; A.O.U. 1983) have also recorded it from Chiapas. The A.O.U. (1983) reported a questionable specimen collected from Oaxaca. (Fig. 2,x).

*Striped Owl*

*Asio clamator*

26 specimens from 3 states recorded. It occurs primarily in south-eastern Mexico and has been reported for Veracruz and Chiapas alone by Blake (1972), Davis (1972), and Peterson and Chalif (1973). Ridgway (1914) did not report this species for Mexico. (Fig. 2,y).

*Stygian Owl*

*Asio stygius*

17 specimens from 9 states recorded. It has been reported from Chiapas (Friedman *et al.* 1950; Davis 1972; Alvarez del Toro 1980; A.O.U. 1983) and the Yucatan Peninsula (A.O.U. 1983; Edwards 1989). However, this does not agree with our own data and those of Paynter (1955) and Hartig (1979). (Fig. 2,z).

*Long-Eared Owl*

*Asio otus*

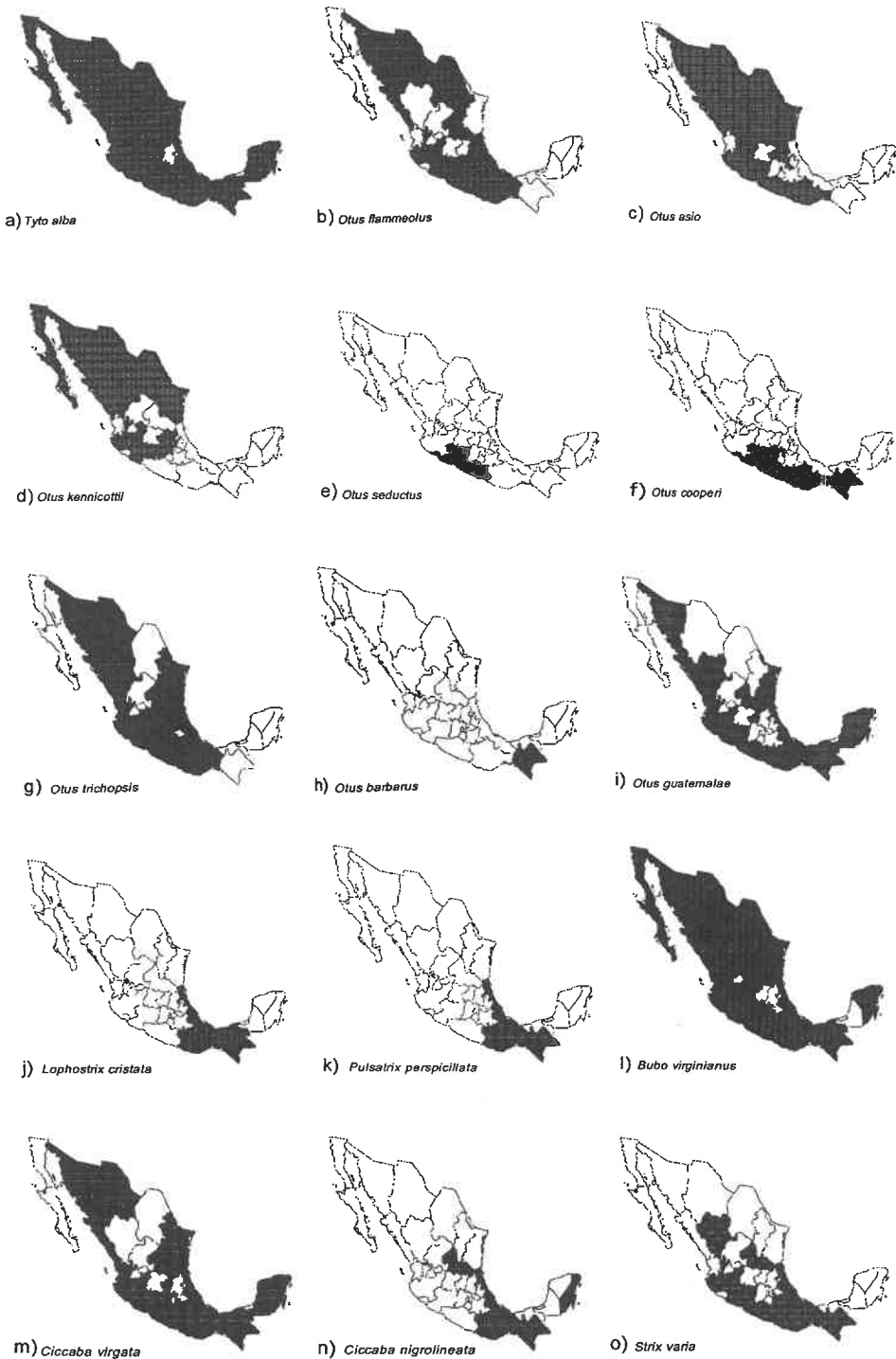
37 specimens from 12 states recorded. The museum data and the literature are in close agreement (Ridgway 1914; Friedman *et al.* 1950; Blake 1972; A.O.U. 1983). Its distribution is wide and there are reports of long-distance migrants from Saskatchewan, Canada (Houston 1966), Montana, USA (e.g. D. Holt, unpubl.), and Minnesota, USA (e.g. D. Evans, pers. comm.), to Mexico. (Fig. 2,aa).

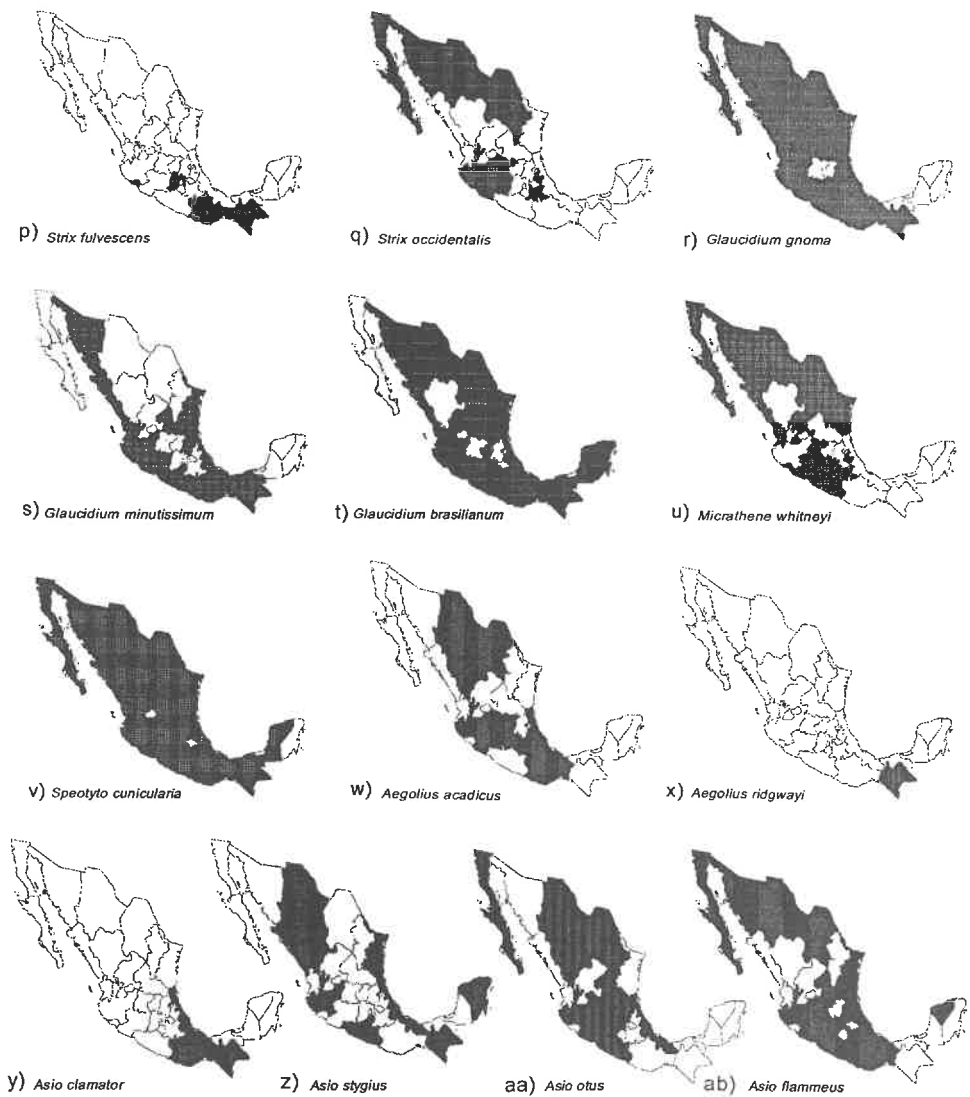
*Short-Eared Owl*

*Asio flammeus*

27 specimens from 13 states recorded. It has also been reported by Friedman *et al.* (1950), Hartig (1979), A.O.U. (1983) and Binford (1989) from the states of Distrito Federal, Jalisco, Oaxaca, Puebla, Veracruz and Yucatan. (Fig. 2,ab).

**Figure 2. Delimited range maps of known owl species inhabiting Mexico. Shaded areas cover those states where the species have been recorded.**





## DISCUSSION

Twenty-eight Mexican owl species, both nearctic and neotropical, are represented. Nineteen have nearctic/neotropical affinities and nine have neotropical affinity. The Balsas Screech Owl *Otus seductus* is endemic to Mexico's Pacific slope region. The Bearded Screech Owl *Otus barbarus* and Unspotted Saw-whet Owl *Aegolius ridgwayi* are reported only from Chiapas.

The Ferruginous xygmy-Owl *Glaucidium brasilianum* provided the largest amount of data and the Balsas Screech Owl the least. The richest owl assemblage came from Oaxaca and Michoacan, with 21 and 19 species each, respectively.

The taxonomy and distribution of Mexican owls are still in question, and this is reflected in the literature. For instance, the subspecies of Screech Owl *Otus* discussed by Marshall (1967) were reported only from eastern Mexico. Our museum data also indicate the presence of some of these subspecies in western Mexico. Recently, Marshall *et al.* (1991) re-named the Vermiculated Screech Owl *Otus guatemalae* as Variable Screech Owl *O. atricapillus guatemalae*. This change was based on voice recordings.

Collection records are important to define distribution and could provide a clue as to

abundance. They are important also for comparing distributional changes, both present and historically, although threatened and endangered species cannot be collected. Historic collections are important for location data. Also, lack of museum specimens may indicate rare, uncommon or easily overlooked species.

Some museum specimens and accompanying data can be only partially correct or else completely wrong. Often the date of collection and other vital information were not included. In some areas of historic distribution, habitats have been so much altered that the species concerned no longer occurs there.

We appreciate that there may be shortcomings in this manuscript. However, it is the first attempt in Mexico to draw together information on this taxonomic group.

We also hope this paper may act as a catalyst to spur further investigation into Mexican owl distribution. Then perhaps research and conservation may follow.

## ACKNOWLEDGEMENTS

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## APPENDIX 1.

### List of national and foreign museums and collections consulted:

Colección Ornitológica del Instituto de Biología; Colección Ornitológica de San Nicolás de Hidalgo, Universidad de Michoacán; Escuela Nacional de Ciencias Biológicas; Instituto de Historia Natural de Chiapas; Instituto Nacional de Investigaciones Forestales y Agropecuarias-Bacalar; Instituto Nacional de Investigaciones sobre Recursos Bióticos; Laboratorio Natural de Las Joyas, Universidad de Guadalajara; Museo de Zoología de la Facultad de Ciencias; Museo de Zoología Iztacala; Salón de las Aves de Saltillo Coahuila; Universidad Autónoma de Baja California Sur; Australian Museum; Anniston Museum of Natural History; Academy of Natural Sciences of Philadelphia; Bell Museum of Natural History; Carnegie Museum of Natural History; Cornell University Collection; Zoology Collection Amsterdam Museum Netherlands; Denver Museum of Natural History; Delaware Museum of Natural History; Fort Hays Museum; Florida Museum of Natural History; Field Museum of Natural History, Chicago; Forschungsinstitut und Naturmuseum Senckenberg; Harvard Museum of Comparative Zoology; Illinois State Museum Collection; Kansas University Collection; Los Angeles California Museum of Natural History; Louisiana State University Museum of Zoology; Moore Laboratory of Zoology, Occidental College; Museo Nacional de Ciencias Naturales, Spain; Museum of Vertebrate Zoology, University of California in Berkeley; Oklahoma Museum of Natural History; Provincial Museum of Alberta; Peabody Museum Collection, Yale University; Royal Ontario Museum; Rijkmuseum Van Natuurlijke Historie, Leiden; Santa Barbara Museum of Natural History; Southwestern College Collection; San Diego Museum of Natural History; Staatliches Museum für Naturkunde, Stuttgart; Texas Cooperative Wildlife Collection; National Museum, Smithsonian Institute; University of Washington, Thomas Burke Memorial State Museum; University of Wisconsin Zoological Museum; Western Foundation of Vertebrate Zoology; Zoological Institute of the Academy of Sciences, URSS.