

TABLE 5.2. (continued)

<i>Common Name</i>	<i>Taxon</i>	<i>La Joya (Presence)</i>	<i>Bezuapan (Presence)</i>
Mouse/rat family	Muridae	X	X
Coues' rice rat	<i>Oryzomys couesi</i>	X	X
Hispid cotton rat	<i>Sigmodon hispidus</i>	X	X
Mexican wood rat	<i>Neotoma mexicana</i>	X	X
Mouse	<i>Peromyscus</i> sp.	X	X
Rabbit	<i>Sylvilagus</i> sp.	X	X
Domestic dog	<i>Canis familiaris</i>	X	X
Skunk/weasel family	Mustelidae	X	
Northern raccoon	<i>Procyon lotor</i>		X
Ocelot	<i>Leopardus pardalis</i>	X	
Peccary family	Tayassuidae	X	
Collared peccary	<i>Tayassu tajacu</i>	X	X
Deer family	Cervidae	X	X
White-tailed deer	<i>Odocoileus virginianus</i>	X	X
Red brocket deer	<i>Mazama americana</i>	X	X

the Pimelodidae family were also identified in the study assemblages—some species in this family inhabit coastal waters, while others inhabit freshwater lakes and rivers, including Lago Catemaco (C. L. Smith 1997: 345; Soriano et al. 1997:452).

Marine fish include snook (*Centropomus* sp.), jack (*Caranx* sp.), and snapper (*Lutjanus* sp.). Snook are inshore fish that favor lagoons, estuaries, and the lower reaches of rivers (Coe and Diehl 1980b: 117; Hoese and Moore 1998: 190–191; C. L. Smith 1997:430). Jack are more variable in their habitat preferences; while most species favor open marine waters and offshore reefs, some prefer inshore waters and the lower reaches of estuaries (Hoese and Moore 1998: 221–222; C. L. Smith 1997:481–484). Snapper are also variable in their habitat preferences, and tend to inhabit shallow waters around reefs, sandy bottoms of bays and estuaries, and mangrove shores (Hoese and Moore 1998: 224; C. L. Smith 1997:494–499). All of these fish could have been procured from inshore and estuarine waters. Coastal waters are located about a day's walk (approximately 20 km) north of La Joya and Bezuapan. Fishing trips to coastal waters would have been overnight excursions at the very least, and would have

taken some of the sites' residents away from the settlement for short periods of time. These excursions may have involved scheduling around the agricultural calendar.

Amphibians identified at La Joya and Bezuapan include toad (*Bufo* sp.) and frog (*Rana* sp.). The toad specimens could represent one of two species native to the Tuxtlas, cane toad (*Bufo marinus*) or Gulf Coast toad (*Bufo valliceps*) (Soriano et al. 1997:509). Both species are common in disturbed habitats, often in close association with human habitations (Lee 2000:85–89). It is unlikely that these toads would have been eaten, and they probably represent commensal taxa (e.g., household pests). The frog specimens probably represent Vaillant's frog (*Rana vaillanti*), as this is the most common frog native to the region. The lack of comparative specimens from this frog, however, made specific identification impossible. Vaillant's frog is terrestrial and nocturnal and prefers humid lowland forests (Lee 2000:131). This species inhabits areas close to lakes and slow-moving rivers and streams (Lee 2000:131).

Reptiles identified at the study sites include turtles, lizards, and snakes. Two turtles were identified, Mexican giant musk turtle (*Staurotypus triporcatus*) and slider (*Trachemys scripta*). Both turtles are aquatic and prefer lakes and marshes; the slider can also be found in rivers and streams (Lee 2000:151, 161). People probably obtained these turtles from Lago Catemaco and possibly from Río Catemaco. Green iguana (*Iguana iguana*) is the only lizard represented in the two assemblages. Iguanas are relatively large arboreal creatures that are often found near lakes and rivers, where they perch on tree branches overhanging the water (Lee 2000:194; Soriano et al. 1997:486–488, 515). Iguanas were probably eaten; people could have easily captured them while fetching water or fishing along Río Catemaco or Lago Catemaco. Boa constrictor (*Boa constrictor*) was the only snake identified at the study sites; it is arboreal and nocturnal and can be found in savannas, primary forests, and occasionally secondary growth (Lee 2000:260).

A variety of birds were identified at the study sites, including ducks, birds of prey, large terrestrial birds, and woodpeckers. Specimens from the duck family (Anatidae), including those identified to the genus *Anas*, could represent one of several species known to inhabit the region. Ducks within the genus *Anas* are generally small to medium-sized waterfowl that favor freshwater and estuaries (Howell and Webb 1995:159); they were probably exploited near Río Catemaco or Lago Catemaco. One of the ducks common in the assemblages was muscovy (*Cairina moschata*), a perching duck commonly found near wooded lakes and rivers, as well as

near marshes. Terrestrial birds identified in the assemblages include turkey (*Meleagris gallopavo*) and bobwhite (*Colinus virginianus*), both of which prefer grassy fields and woodlands with thick understories (Howell and Webb 1995:225, 231). The procurement of these birds probably entailed hunting away from the residence. The hawk (*Buteo* sp.) could also represent one of several species found in the Tuxtlas, all of which prefer a variety of nonaquatic wooded and open habitats (Howell and Webb 1995:196–205). The yellow-bellied sapsucker (*Sphyrapicus varius*) is a migratory woodpecker that feeds on tree sap by drilling small holes in the mid to higher reaches of trees (Howell and Webb 1995:454). This bird can be found in forests and along forest edges, though rarely in pine forests (Howell and Webb 1995:454). The hawk and the sapsucker specimens probably do not represent food remains; these birds were most likely captured for their feathers.

Mammals represent the class from which residents of La Joya and Bezuapan exploited the widest range of taxa. Larger mammals identified in the assemblages include collared peccary (*Tayassu tajacu*), white-tailed deer (*Odocoileus virginianus*), and red brocket deer (*Mazama americana*). Both collared peccary and white-tailed deer inhabit a variety of habitats, including forests, forest edges, grasslands, disturbed areas, and occasionally agricultural fields (Coe and Diehl 1980b:102–103; Reid 1997:281, 283; Soriano et al. 1997:604–607). The red brocket deer is a small nocturnal deer that prefers undisturbed evergreen forests (Reid 1997:284; Soriano et al. 1997:606).

Medium-sized mammals include opossum (*Didelphis* sp.), hispid pocket gopher (*Orthogeomys hispidus*), nine-banded armadillo (*Dasyus novemcinctus*), rabbit (*Sylvilagus* sp.), northern raccoon (*Procyon lotor*), ocelot (*Leopardus pardalis*), and domestic dog (*Canis familiaris*). The opossum and gopher both prefer disturbed habitats, including areas along forest edges, secondary growth, and weedy areas (Reid 1997:43–44, 192). Today modern farmers in the region and Yucatec Maya farmers capture gophers through the use of snares (Coe and Diehl 1980b:106; Hovey and Rissolo 1999:261). Armadillos prefer deciduous and evergreen forests, thorn scrub, and savanna (Reid 1997:60). The rabbit could represent one of two species native to the Tuxtlas, eastern cottontail (*Sylvilagus floridanus*) and forest rabbit (*Sylvilagus brasiliensis*). Both species inhabit forest edges and areas of secondary growth, and the cottontail is known to be an agricultural pest (Reid 1997:250–251; Soriano et al. 1997:591–592). Raccoon was identified only in the Bezuapan assemblage, represented by a single specimen. Raccoons are widespread in coastal areas, are highly adapted to

disturbed habitats, such as towns and rural hamlets, and can be considered crop pests (Coe and Diehl 1980b:106; Reid 1997:258). The ocelot's range extends over a wide variety of habitats, including deciduous and evergreen forests, forest edges, areas of secondary growth, and agricultural areas (Reid 1997:270; Soriano et al. 1997:602–603). Domestic dogs probably lived on-site, where they scavenged for food and provided warning to the sites' inhabitants. The inclusion of dog remains in ordinary domestic refuse at both La Joya and Bezuapan suggests that dogs may have been a food resource as well.

Smaller mammals identified in the study assemblages include specimens from the shrew family (Soricidae), squirrel (*Sciurus* sp.), and specimens from the mouse/rat family (Muridae), including Coues' rice rat (*Oryzomys couesi*), hispid cotton rat (*Sigmodon hispidus*), Mexican wood rat (*Neotoma mexicana*), and mouse (*Peromyscus* sp.). The squirrel could represent one of two native species, the Mexican gray squirrel (*Sciurus aureogaster*) or Deppe's squirrel (*Sciurus deppei*), both of which prefer forests, forest edges, and secondary growth (Reid 1997:183–186). Deppe's squirrel is also a known agricultural pest (Reid 1997:186). Both the rice rat and the cotton rat favor disturbed habitats and agricultural areas (Reid 1997:203, 212; Soriano et al. 1997:593–594). The Mexican wood rat is relatively uncommon and tends to inhabit pine-oak forests and open woodlands (Reid 1997:219). The mouse specimens could represent one of two species native to the region, white-footed mouse (*Peromyscus leucopus*) and the Aztec mouse (*Peromyscus aztecus*); both favor forest edges, secondary growth, and weedy fields (Reid 1997:229–231). These mice and rats were probably agricultural and habitational pests; they likely represent commensal taxa, as opposed to food resources (but see Szuter 1994).

Overall, the animals represented in the vertebrate assemblages from La Joya and Bezuapan frequent a wide variety of habitats. Understanding local animal ecology is essential to understanding how people organized their hunting, fishing, and trapping activities. The quantitative analysis presented below incorporates information on animal habitats in order to explore how and why people altered the ways in which they procured animal protein.

BASIC RESULTS: THE STUDY ASSEMBLAGES IN TEMPORAL PERSPECTIVE

Before beginning the quantitative analysis, it is necessary to present the basic quantitative measures on which I will base my analysis. This section

presents the results of the taxonomic identifications of the screened and floated zooarchaeological assemblages by period. The data are summarized by NISP (number of identified specimens), MNI (minimum number of individuals), and bone weight.

La Joya: The Screened Samples

The screened zooarchaeological assemblage from La Joya consists of 4,585 bone fragments weighing 2,920 g. Because it was not possible to assign every specimen a discrete chronological designation, I consider only those specimens that each could be clearly identified with the Early, Middle, Late, or Terminal Formative, or Early Classic period.

The Early Formative Sample (EF). The faunal sample dating to the Early Formative period consists of 757 specimens representing 27 individuals (Tables 5.4, 5.5). Some 10.6% of this sample was unidentifiable. Of the specimens that could be identified to taxonomic class, fish contributed 10.9% by NISP, 14.8% by MNI, and 8% by weight (Tables 5.6–5.8). Both freshwater and marine fish were identified, including snook, jack, snapper, and mojarra.

Amphibians and reptiles from the Early Formative screened sample compose 2.5% of the NISP identifiable to class, 7.4% by MNI, and 2.2% by weight (Tables 5.6–5.8). Toad was the only amphibian identified to genus. Reptiles identified in the Early Formative include unidentified turtle remains and green iguana.

Birds represent 2.4% of the NISP identifiable to class, 18.5% by MNI, and 1.4% by weight (Tables 5.4–5.6). Several taxa were identified, including duck (*Anas* sp.), hawk, wild turkey, northern bobwhite, and yellow-bellied sapsucker. In addition, one specimen from the falcon family (Falconidae) was also identified.

Mammals contributed the majority of the NISP and MNI, representing 84.2% of the specimens identifiable to taxonomic class, 59.3% by MNI, and 88.3% by weight (Tables 5.4–5.6). The larger mammals identified in the Early Formative assemblage include collared peccary, white-tailed deer, and red brocket deer. Medium-sized mammals include opossum, hispid pocket gopher, rabbit, domestic dog, and ocelot. The inclusion of dog remains in ordinary domestic refuse during all time periods suggests that dogs probably were a food resource. Smaller mammals identified in Early Formative deposits at La Joya include squirrel and several species from the mouse/rat family (Muridae). Mice/rat species in-