

Archaeology of the Bahía de los Ángeles Biosphere Reserve

Thomas Bowen
California State University, Fresno

Eric W. Ritter
Bureau of Land Management

Julia Bendímez Patterson
Centro INAH Baja California

Abstract

Archaeological surveys and limited excavations within Bahía de los Ángeles and Bahía las Ánimas indicate that indigenous peoples may have occupied the region subsumed by the Bahía de los Ángeles Biosphere Reserve for 6,000 years or more. Sites include coastal shell mounds, camp clearings and piled rock enclosures, stone tool manufacturing sites, burial sites, trails, and rock art sites. Artifacts include projectile points, simple cutting and scraping tools, flaked shell tools, milling stones, and post-Spanish ceramics. Projectile points and milling stones provide evidence of hunting and gathering of terrestrial mammals and plant foods. Shell mounds attest to heavy exploitation of littoral and marine resources, especially shellfish, sea mammals, sea turtles, fish, and crabs. Although local chronology is sketchy, reliance on seafood appears to have increased during late prehistoric times. These late peoples are known archaeologically as the Comondú culture and historically as the Cochimí Indians. Although Isla Ángel de la Guarda is less well known archaeologically, it too was extensively utilized by indigenous peoples. Most sites and artifacts are similar to those of the adjoining peninsula, suggesting that the people who occupied the peninsula made frequent voyages to the island over centuries or millennia. Archaeological sites on both the peninsula and island are increasingly threatened by development, recreationalists, and looting, but no conservation strategy has yet been developed or implemented.

Introduction

Conservation efforts, by focusing on plant and animal species, have sometimes overlooked the fact that indigenous peoples have often been important participants in local ecosystems, interacting with native plants and animals over great spans of time. Humans have been in Baja California for some 13,000 years and the Bahía de los Ángeles region for the past 6,000 years, where a record of their activities is preserved in archaeological sites. In this chapter we review that archeological record, identify major threats, and suggest a starting point for protecting cultural resources.

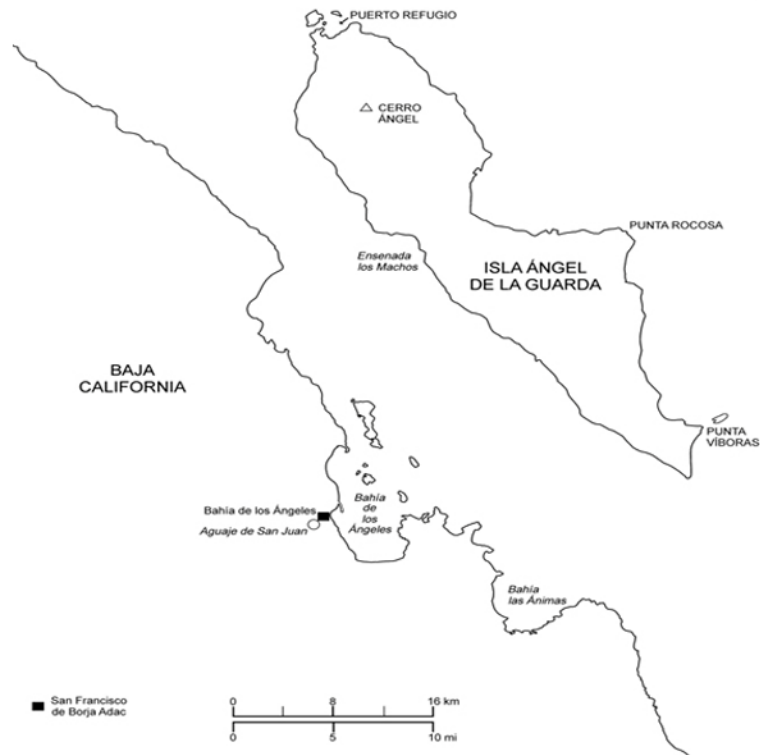


Figure 1. Bahía de los Ángeles and surrounding area.

Archaeology of Bahía de los Ángeles and Bahía las Ánimas

When Francisco de Ulloa cruised past Bahía de los Ángeles in 1539, the region (Figure 1) was occupied by a highly mobile hunting and gathering people known as the Cochimí. In 1746, Jesuit missionary-explorer Fernando Consag bestowed the bay with its present name and penned the first detailed account of the Indians (in Venegas 1759:321-327). In 1762, when the mission of San Francisco de Borja Adac was founded 25 km inland, Bahía de los Ángeles became its supply port and the Indians were brought under European influence. The mission was closed in the early 1820s after the Indians were wiped out by epidemics, and Bahía de los Ángeles lay uninhabited until mining was established late in the nineteenth century.

Even during its abandonment, the bay occasionally drew outsiders because of two crucial resources: the shelter of the bay itself and its permanent fresh-water spring, known as the Aguaje de San Juan. For indigenous peoples, from prehistoric times until the extinction of the Cochimí, the bay offered not only water, but also a variety of littoral and marine food resources, plus access to the plants and animals of the interior. As a result, the area now subsumed by the Bahía de los Ángeles Biosphere Reserve has a rich archaeological record, with sites probably numbering in the thousands.

History of research

Archaeological investigations on the coast began early. In 1887, botanical collector Edward Palmer excavated a burial cave behind Bahía de los Ángeles, although the remains were not analyzed until much later (Massey and Osborne 1961; Noble 1973a, 1973b, Tyson 1975).



Figure 2. Bahía de los Ángeles. El Chiste shell mound (UC-BC-18), looking west.

Paleoenvironmental studies of shell mounds in the 1950s by Carl Hubbs produced the first radiocarbon dates for human occupation of the region (Hubbs et al. 1960, 1962; Moriarty 1968). In 1965, archaeologist Emma Lou Davis (1968) spent a week recording coastal sites, and two decades later John Foster (1984) reported a site with possible trans-Gulf connections. In the 1980s and 1990s, one of us (Ritter) conducted extensive multidisciplinary surveys of Bahía las Ánimas and Bahía de los Ángeles (Ritter 1994, 1995, 1997, 1998; Ritter et al. 1994, 1995) while another of us (Bendímez) directed excavations of the shell mound at the Aguaje de San Juan (Bendímez et al. 1993).

Sites

More than 100 sites have been recorded at Bahía de los Ángeles and Bahía las Ánimas. Most fall into a few categories:

Coastal shell sites. These sites, by far the most numerous, contain a long and detailed record of human exploitation of faunal resources. Many consist of cultural remains on or in shoreline dunes; others are inland accumulations. They range from small surface scatters to true shell mounds or middens -- densely packed accumulations of literally millions of shells, some burned, intermixed with other faunal remains, charcoal, and artifacts (Figure 2). In areal extent, these sites vary from less than 50 m in diameter to more than 1.5 km in length. Although 51 taxa of shells have been identified, small venus clams (*Chione* spp.) predominate and at many sites comprise more than 95 percent of the shell remains.

Other faunal remains include sharks, rays, reef and sandy-bottom fish, sea turtles, sea mammals, crabs, and small quantities of land mammal and bird bones. Artifacts, usually sparse,

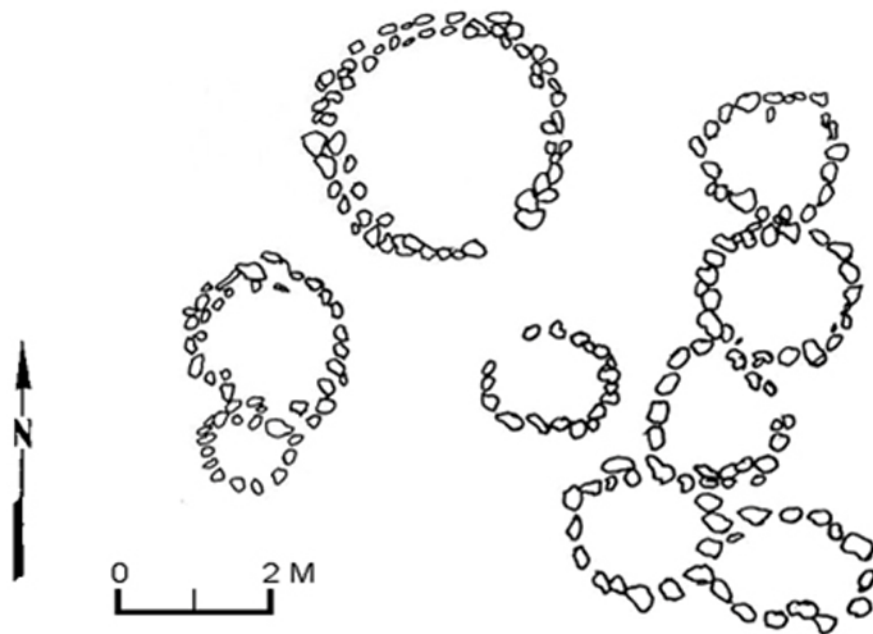


Figure 3. Bahía de los Ángeles. Rock enclosures at Cerro los Ángelitos (UC-BC-32).

are mostly simple stone flakes. Finished tools include projectile points and flaked shell tools. Milling stones (*manos* and *metates*) at several sites indicate the importance of plant foods in the diet. The assemblage of artifacts and food remains suggests that these sites were shore camps occupied repeatedly by family groups, in some cases over spans of hundreds to thousands of years.

Clearings and piled rock enclosures. Many sites are characterized by circular or oval structures that vary from simple clearings to partial or complete enclosures of piled rocks. Several hundred have been observed. They occur along the shoreline as well as inland on alluvial fans, low hills, and occasionally in remote locations with expansive vistas. Some are isolated features, but most occur in clusters of up to 62 (Figure 3). The majority are between 1.5 m and 4.0 m inside diameter. Clearings and enclosures are often associated with shells and artifacts, suggesting that some, at least, were sleeping clearings and windbreaks (Aschmann 1959:108).

Manufacturing sites. Often referred to as quarry-workshop sites, these common and sometimes large accumulations of lithic debris are localities where rock was quarried and tools were manufactured. Most rocks used for tools, including rhyolite, basalt, quartz and various siliceous rocks, were available locally, although some obsidian was brought from Isla Ángel de la Guarda and other distant sources. Since finished tools were taken elsewhere for use, artifacts consist of waste flakes and unfinished tools broken before completion.

Burial sites. The dead were buried away from residential areas, usually in caves or rocky hillsides. Burial types include flexed and extended skeletons, secondary burial, multiple burial, and possibly cremation. The most famous burial site is the cave excavated by Palmer in 1887, which yielded seven skeletons and numerous associated artifacts. Many artifacts were made of perishable materials and include carrying nets, matting, cordage, cane whistles and a human-hair cape, the latter an important piece of Cochimí shamans' paraphernalia. A fragment of woven cotton cloth (*Gossypium* spp.), foreign to the peninsula, must have been obtained by trade from mainland Mexico or the U.S. Southwest (Massey and Osborne 1961). In addition to cave burials,

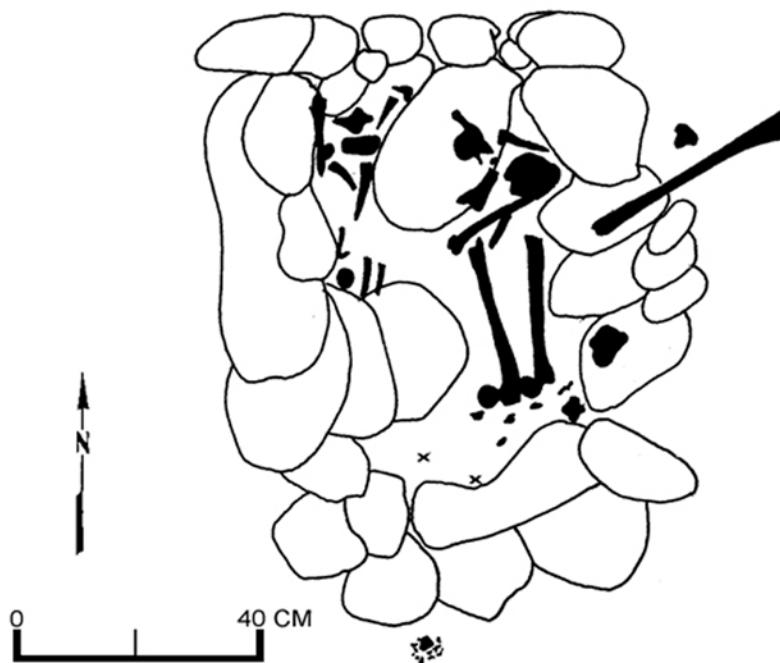


Figure 4. Bahía las Ánimas. Burial tomb at Cerrito de las Calaveras (UC-BC-45). Outline figures are rocks, solid color represents bones, “x” represents shells.

about 10 well-hidden tombs sealed with rocks have been located (Figure 4), and about 25 burials have been found in talus pits. In one case, talus burials may be associated with more than 40 irregular clearings, special pathways, and spaced cairns, suggesting elaborate burial rituals.

Other sites. Less common types of sites include piled rock cairns, trails, rock art sites, and possible storage caves.

Artifacts

Most sites contain artifacts, and several important categories can be distinguished:

Stone flakes and cores. Nearly all stone tools within the Biosphere Reserve were made by hard-hammer percussion, the most basic stone-working technique. In this process, the artisan uses a rounded cobble as a hammer stone to strike successive flakes from a quarry rock, transforming the latter into a “core.” Percussion flaking produces spent cores and huge quantities of waste flakes, which explains their prevalence at sites throughout the region. Some flakes and cores with sharp edges may have become “instant tools” -- picked up, used briefly for a specific task, and discarded. Unless this resulted in edge damage or wear, instant tools cannot be distinguished from manufacturing waste.

Retouched flakes. Stone tools made according to a standardized form are rare. Many tools are merely large flakes that were retouched by detaching a series of small flakes along an edge, thereby creating a serviceable cutting or scraping implement. Though simple, some of these tools were nicely made, with well-trimmed edges (Figure 5a-b).

Core tools. Some tools were made from cores. Many are flat on one face and convex or domed on the opposite face (Figure 5c-d). Apparently, overall shape was unimportant; the intent was to produce useful working edges for specific tasks, such as chopping, cutting, scraping, planing, and gouging.

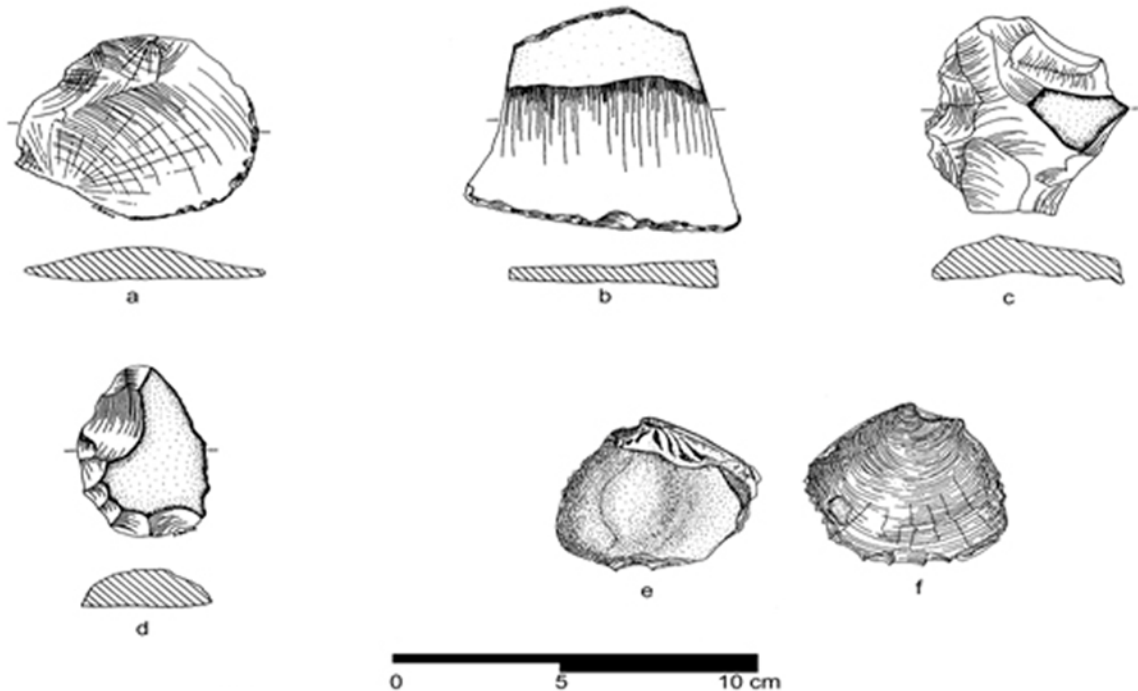


Figure 5. Bahía de los Ángeles and Bahía las Ánimas. Flaked stone and shell tools from several sites. a-b, retouched stone flakes; c-d, core tools; e-f, a flaked *Dosinia ponderosa* shell tool, ventral and dorsal views.

Bifaces. These are among the few stone tools made to a predetermined form. They are cores that were carefully flaked on both faces to produce an oval profile and a sharp edge all around. Whether they are unfinished artifacts (“preforms”) that represent a stage in the manufacture of more elaborate implements or are themselves finished tools (knives?) is uncertain. Bifaces, thought to be chronologically early (Davis 1968:190-192), are comparatively scarce on the peninsular coast.

Projectile points. Projectile points were also made to predetermined shapes. Though not common, several types are known (Figure 6). Relatively large leaf-shaped, bipointed, stemmed, and corner-notched points are early types probably used to tip atlatl (spear-thrower) darts. Much more common are small triangular points, often side-notched or serrated. Used to tip arrows, these are late types that survived into historic times.

Flaked shell tools. A distinctive type of tool was made from shells of the large venus clam *Dosinia ponderosa* by flaking the margin (Figure. 5e-f), thereby creating a ragged saw-like cutting edge (Tyree 1998). The use of this medium may have been stimulated by local scarcity of high-quality cryptocrystalline rock for tool making.

Milling stones (manos and metates). Many sites include unshaped beach cobbles that were used as food-grinding implements. Some metates have basins worn up to 4 cm deep -- clear if indirect evidence of the importance of plants in the diet. Similar manos and metates were used throughout the prehistoric period in most of Baja California, and they were the standard seed-grinding implements of the historic Cochimí (Barco 1981:74).

Ceramics. Although there is no historic record of indigenous Cochimí pottery, undecorated brownware sherds occur at several sites. Except for possible trade pieces, they have dark cores and pitted surfaces, a signature of vegetal matter added to the clay and a characteristic of European-influenced ceramics. These sherds are almost certainly historic in age and probably either of European manufacture or made by Indians under Jesuit guidance. Sherds from one site



Figure 6. Bahía de los Ángeles. Projectile points from several sites. a-d, early leaf-shaped, bipointed, and corner-notched points; e-i, late (Comondú series) triangular, side-notched, and serrated points.

resemble historic Seri (Comcáac) pottery from Sonora, suggesting trans-Gulf contacts (Foster 1984). While Seri-Cochimí contact almost certainly took place, the identification of these particular sherds as Seri remains uncertain (Bowen 1976:95-109, 2005:410).

Chronology and cultural identity

Chronology for the peninsular coast is sketchy. Many artifacts and structures are non-diagnostic and known to have great time depth throughout western North America. Since the Cochimí occupied the region when the Spaniards arrived, these Indians must be responsible for some of the remains. Archaeologically, the Cochimí and their immediate predecessors are referred to as the Comondú culture (Massey 1966:50-51), which developed sometime between about A.D. 500 and 1000 and lasted until Cochimí extinction. Five radiocarbon samples, from different localities within Bahía de los Ángeles and Bahía las Ánimas, have yielded ages that fall within this span (Table 1).

Two samples from the shell mound at the Aguaje de San Juan (Table 1: LJ-29 and LJ-26) have yielded much earlier radiocarbon ages, suggesting that indigenous people began using this fresh-water spring at least 6,000 years ago. An additional radiocarbon age for the Aguaje de San Juan of 6040 ± 100 B.P., obtained by one of us (Bendímez), provides further evidence of early utilization of that site (Bendímez et al. 1993:176).

Whatever the arrival time of the first people, most coastal sites seem to be the product of the Comondú culture and hence late (Davis 1968:189-190; Ritter 1998:33; Ritter et al. 1994:18-19). This raises an interesting question about the congruence between archaeological and ethnohistorical data. Although the enormous shell deposits suggest intense exploitation of shellfish and marine resources in late prehistoric times, eighteenth-century Jesuit accounts are equivocal on the importance of these resources in the Cochimí diet (Aschmann 1959:97-105). It is a discrepancy that warrants further investigation.

Table 1. Radiocarbon dates from Bahía de los Ángeles and Bahía las Ánimas.

Sample	Material	Radiocarbon age	Calibrated range (1 sigma)	References
LJ-237	Shell	300 ±150	Modern	Hubbs et al. 1962:220-221; Moriarty 1968:28
UCR-2845	Charcoal	450 ±40	A.D. 1422-1463	Ritter 1997
CAMS-29413	Human collagen	490 ±70	A.D. 1321-1470 ¹	King 1997:174
LJ-603	Shell	530 ±130	-- ²	Moriarty 1968:31
CAMS-29412	Human collagen	970 ±50	A.D. 1019-1153 ¹	King 1997:174
LJ-29	Charcoal	2500 ±300	975-205 B.C.	Hubbs et al. 1960:207; Moriarty 1968:21
LJ-26	Shell	6100 ±200	4543-3973 B.C.	Hubbs et al. 1960:206

¹ Calibration range highly uncertain due to unknown intake of dietary marine carbon.

² Sample not clearly of cultural origin.

Archaeology of Isla Ángel de la Guarda

In 1765, Cochimí Indians told the Jesuit missionary Wenceslaus Linck of seeing fires on Isla Ángel de la Guarda, thereby inspiring Linck to launch an expedition to find out if Indians lived there. After reconnoitering “a considerable part” of the island and failing to find any Indians, any sign of Indians, or any fresh water, the good padre concluded that the island was uninhabited (Burrus 1967:26-29).

Linck’s assessment has persisted for nearly two and a half centuries. Despite occasional rumors of water and archaeological remains (Bowen 2000:480), the prevailing view within the scientific community has been that Isla Ángel de la Guarda has probably never had surface water or inhabitants (e.g., Moran 1983:382-383). We now know that this is incorrect. Whether the island had permanent water or permanent residents remains undetermined, but there is no serious doubt that long-term water sources exist and that indigenous peoples, at some time in the past, made extensive use of the island.

Resources

With 199 recorded plant species (Rebman et al. 2002), an abundant herpetofauna (Grismer 2002), and the resources of the sea available as food, little other than water would have limited prehistoric human occupation of the island. All water sources reported today are *tinajas*. Local fishermen currently use a *tinaja* on the northeast coast (Loreto Fuerte, personal communication 2005). Others are located in the northern interior of the island (Arnold 1957:247) and southeast of the island’s midsection (Abbey 1991:72; Peacock and Moore 1991:35; Charles Sylber, personal communication 2004). Some are deep and well-shaded pools thought to hold water semipermanently (Arnold 1957:247; Abbey 1991:73; Conrad Bahre, personal communication 1978; Doug Peacock, personal communication 1999). Moreover, the water available today reflects present arid climatic conditions; significantly more water may have been available during cooler and wetter times in the past.

History of research

Archaeological research on Isla Ángel de la Guarda is in its infancy. Systematic fieldwork to date consists of 10 days of exploratory survey by one of us (Bowen). Yet this



Figure 7. Isla Ángel de la Guarda. Clearing in talus field on a high ridge, midsection of the island. It is an oval 2.7 m by 1.8 m. Photo looks west.

meager systematic work, coupled with observations by non-archaeologists, shows that ancient humans knew the island well. Sites have been recorded or observed near Puerto Refugio (Bahre and Bourillón 2002:386; Bowen, field notes), in the northern interior (Arnold 1957:270, map), near Cerro Ángel (Charles Sylber, personal communication 2004), around Ensenada Los Machos and the island's midsection (Bowen, field notes), southwest of Punta Rocosa (Abbey 1991:78; Peacock and Moore 1991:153; Terrence Moore, personal communication 1999), questionably in uplifted sea caves south of Punta Rocosa (Ives 1963), and near Punta Víboras (Bahre and Bourillón 2002:386).

Sites

Of about 25 sites recorded in detail, most fall into the categories recognized on the peninsular coast:

Coastal shell sites. Two important sites are on shoreline dunes, and cultural material on one extends for nearly 1 km. Although deposits are relatively sparse and shallow, the artifact-to-shell ratio is much higher than at similar peninsular sites. Artifacts are mostly stone flakes but include a few finished tools, flaked *Dosinia* shell artifacts, and well-used milling stones. Many species of shellfish are represented, although *Chione* clams dominate one of the sites. Bones, some burned, include large quantities of sea lion, along with sea turtle and fish.

Clearings and piled rock enclosures. These features, common throughout the island, vary from simple surface clearings (Figure 7) to full enclosures of rocks piled two or three high (Figure 8). Interior diameters are typically between about 1.2 and 1.8 m, and rarely exceed 2.0 m; wall heights seldom exceed 50 cm. Structures occur in isolation and in groups of up to 27,



Figure 8. Isla Ángel de la Guarda. Piled rock enclosure on a ridge near Puerto Refugio, with rocks piled up to three high. Inside diameter is 1.2 m. Since the natural surface is small flat stones the interior was not cleared. Photo looks southwest.

and many are accompanied by stone flakes, shells and, occasionally, tools. These structures match the eighteenth-century Cochimí “houses” described by Barco (1981:46), who quipped that they were so small the Indians could not stretch out in them.

Stone circles. Several sites have structures made by arranging about a dozen rocks into a roughly circular pattern, 1-2 m in diameter and open on one side (Figure 9). None is clearly associated with artifacts, and they do not seem to be shelters. Their function is unknown.

Manufacturing sites. The island has many specialized sites where stone tools were made from local rocks. Preferred materials were brown or pink rhyolite, gray andesite, quartz, and obsidian. Waste flakes sometimes number in the low thousands.

Rock clusters and cairns. These are apparently the most numerous structures on the island. They consist of rocks gathered together to form a cluster or, if piled two or more high, a piled rock cairn. They vary from simple aggregations of three or four rocks that form a cluster less than 50 cm in diameter and 20 cm high, to cairns 2 m in diameter and 1 m high composed of more than 40 rocks. Most occur in groups, and some are arranged in long lines that can include several hundred structures. They are generally situated on high ridges and summits and positioned as if intended to be seen from below (Figure 10). They occur throughout the island, and more than 1,000 have been observed. None is associated with artifacts. Their function could be related to an eighteenth-century Cochimí religious practice in which shamans required penitents to erect “at certain distances some heaps of stones” in the mountains (Clavigero 1937:115).



Figure 9. Isla Ángel de la Guarda. Stone circle, open to the northwest, near Ensenada Los Machos. It is an oval 1.05 m by 0.95 m. Photo looks east.



Figure 10. Isla Ángel de la Guarda. One of more than 300 cairns on a high ridge east of Ensenada Los Machos. The base is 1.6 by 1.2 m and rocks are piled four high, giving a total height of 70 cm. Photo looks north-northeast.

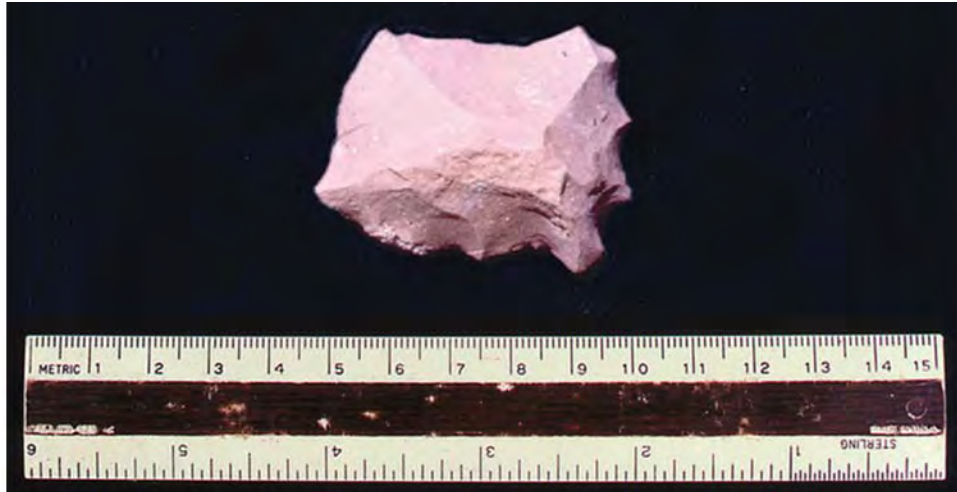


Figure 11. Isla Ángel de la Guarda. Denticulate of local rhyolite 5.2 cm long, 4.5 cm wide and 1.5 cm thick. The “tooth” at the lower right corner was given a flat chisel-like end by striking a small flake from the underside.

Artifacts

Artifacts on Isla Ángel de la Guarda are generally similar to those at peninsular sites: Stone flakes and cores. The vast majority of artifacts are manufacturing waste, although some flakes and cores may have served as “instant tools.”

Retouched flakes. Most stone tools are simple flakes that have been reworked along an edge to make sturdy cutting or scraping implements.

Core tools. The most common core implements are beaked tools and denticulates. These were flaked so as to leave a sharp “beak” or flattened “tooth” between two adjacent flake scars, suggesting use as gouging implements (Figure 11). Several domed tools with a steep edge angle at the intersection of the two faces may have been planes, used by grasping the domed side and sliding the flat face on the surface to be worked.

Bifaces. So far, the only implements found on the island that were made to a standardized form are bifaces. Of five known, four are between 6.0 and 13.2 cm long. The fifth is a spectacular specimen 25.8 cm in length (Figure 12).

Flaked *Dosinia* shells. These ragged-edged tools were presumably used for cutting. Many specimens have been dulled from use.

Milling stones. Natural beach cobbles were used as manos and metates (Figure 13). Several specimens with heavy wear indicate long-term use.

Chronology and cultural identity

Not surprisingly, the archaeological record of Isla Ángel de la Guarda (as currently known) is largely similar to that of the adjacent peninsular coast. The overall picture is one of a stripped-down version of the peninsular remains. Some missing elements, such as burials and rock art, may be illusory, the effect of insufficient fieldwork. However, the absence of projectile points is probably real since the island (apparently) lacked game animals. Ceramics are probably absent because Jesuit influence did not extend to the island. Why rock clusters and cairns are so numerous and why the artifact-to-shell ratio is so high at coastal shell sites are among the discrepancies that need explanation.

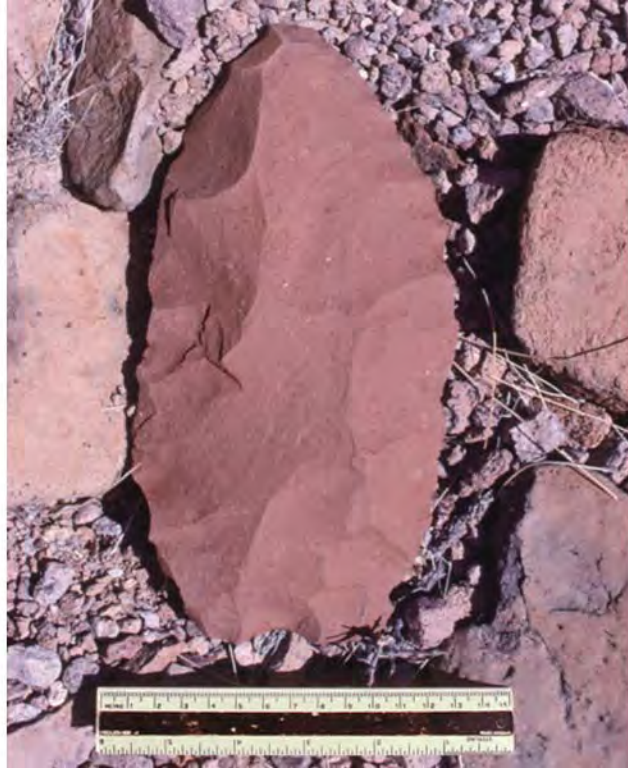


Figure 12. Isla Ángel de la Guarda. Giant biface of local rhyolite, in situ. It is 25.8 cm long, 11.4 cm wide, and 3.7 cm thick.



Figure 13. Isla Ángel de la Guarda. Unshaped beach cobble metate from a dune site near Puerto Refugio. It is 21.3 cm long, 12.3 cm wide, and 3.7 cm thick. The grinding face, shown here, was buried, thereby preserving the dark organic residue visible in the photo.

The overall similarity between the archaeology of the peninsular coast and the island suggests that both were predominantly the product of the local Cochimí and their immediate predecessors. Although Padre Linck found no Indians on the island in 1765, he alludes to occasional Cochimí visits at that time (Burrus 1967:29). While generally consistent with archaeologically defined Comondú culture, none of the island's remains has been directly dated, and most of the structures and artifacts are simple and widespread forms that could be of almost any age. Indeed, Paleoindian projectile points have been found about 170 km south of Bahía de los Ángeles, indicating that humans have been in Baja California for some 13,000 years (Hyland 1997:274, 301-302; Hyland and Gutiérrez 1996). Indigenous voyagers equipped with the ubiquitous reed balsa, thought to be an ancient form of watercraft (Heizer and Massey 1953), probably could have reached Isla Ángel de la Guarda at any time during this long span (Bowen 2004:200).

This potential time depth has significant implications for interpreting the biogeography and modern ecology of the island. Indigenous peoples clearly used the island's plant and animal resources for food and materials, and their impact on the island's biota over centuries or millennia could have been considerable (Nabhan 2000, 2002). Archaeological sites often preserve detailed information about the organisms exploited by ancient peoples, and this can include records of introductions and extinctions (Bowen 2004). In this context, it is worth noting that the wide-ranging Seri Indians call the island Xazl Iimt "Where the Pumas Live" (Stephen Marlett, personal communication 2004) and early in the last century believed the island had supported coyotes and deer as well as pumas (Sheldon 1979:116; see also Lewis and Ebeling 1971:333; Murray 1967:63). Whether this is ecologically plausible, even with greater precipitation in the past, or merely Seri imagination at work, unraveling the human history of the island through archaeological research may benefit biologists by revealing long-term ecological changes.

Threats and conservation

Three principles should guide conservation of archaeological resources within the Biosphere Reserve:

- All antiquities, whether on public or private land, belong to the Mexican federal government. It is illegal to remove, disturb, or destroy them without a permit, even to give them to a museum.
- The scientific value of archaeological remains lies not only in the objects themselves, but also in their precise location within the site. Disturbing their position destroys much of their informational value.
- Archaeological sites are the only source of information about prehistoric human activities. They are a non-renewable resource; once a site is disturbed or destroyed, the information it contained is gone forever.

One of us (Bowen 2004) has enumerated major threats to archaeological sites on the Gulf islands, and sites around Bahía de los Ángeles are at risk from most of the same sources. By far the most serious threats come from development projects, recreational visitors, and illicit artifact collectors (site looters). Any construction that alters the land surface may disturb or destroy sites. Campers and off-road vehicle users likewise threaten any sites in their path. Artifact collectors, who remove cultural remains as a hobby, often strip sites clean. Regrettably, scientists also have

sometimes removed artifacts, thinking erroneously that their actions are acceptable if they donate them to a museum.

Development projects and recreational visitors have already damaged or destroyed a number of sites, and looters have been active for more than a century (Massey and Osborne 1961:341; Ritter et al. 1994:9, 12). At present, the greatest threat comes from the “Escalera Náutica” project. Not only is construction of the proposed marina and associated infrastructure likely to destroy more sites around the bay, but the anticipated influx of large numbers of recreational boaters, who have been some of the worst looters, will likely increase manifold the pace of site destruction on the islands as well as the coast.

Although some conservation measures have been proposed (Bowen 2004:203), none that specifically target archaeology are currently in place, and sites within the Biosphere Reserve remain unprotected. Conservation of archaeological resources is an issue that needs input from many sources, and we suggest that an effective way to start would be to convene a conference to discuss the issue. We would favor participation by archaeologists, biologists active in the Biosphere Reserve, representatives of several organizations including the Instituto Nacional de Antropología e Historia, government conservation agencies, and conservation NGOs, plus organizations in Bahía de los Ángeles such as the Museo de Naturaleza y Cultura, municipal government, the school system, and the *ejido*, along with any other interested parties.

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