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## Migrant Deaths Along the California–Mexico Border: An Anthropological Perspective\*

**ABSTRACT:** California shares a 150-mile international border with Mexico. Traditionally, this border has seen non-stop illegal migration. In the 1990s, the Border Patrol began a concerted effort to establish and maintain control of the border, beginning in urban San Diego. This heightened law enforcement presence, known as Operation Gatekeeper, changed the westernmost segment of the border from the most permeable to the least permeable. This enforcement pushed migrants into more dangerous crossing areas in eastern San Diego and Imperial Counties, making their trip longer and more physically challenging as they made their way through treacherous mountains, deserts, and irrigation canals. Death rates soared. Political decisions impacted human lives and the caseloads of forensic anthropologists in jurisdictions along the border. Bodies decompose rapidly here, and there are minimal sources of antemortem data. Many of these migrants are never identified. This paper, and this symposium, is an attempt to bring this situation to the notice of other anthropologists and to discuss cooperative means of addressing the issue of identification.

**KEYWORDS:** forensic sciences, forensic anthropology, California, illegal migration, Mexico, human identification

California shares a 150-mile border with Mexico. The 66-mile San Diego segment has historically been the nation's busiest back door for illegal immigration. The greater San Diego sector comprises over 4000 square miles. Prior to 1994, the first 14 miles of the border from the Pacific Ocean inland accounted for nearly half of all illegal immigration along the nearly 2000 miles of border extending through to Texas. In 1991, 1992, and 1993, for example, there were over half a million Border Patrol apprehensions of illegal migrants per year, 45% of the national total, in the San Diego sector.

This area was the preferred corridor because of heavily populated neighborhoods north and south of the border and easy access to buses, trains, and other transportation out of the area. The Border Patrol was understaffed, fencing was inadequate, many preferred crossing areas were inaccessible to patrol, restrictive prosecution guidelines were in effect, and there was no coherent strategy to deal with the influx (1). Hundreds of illegal aliens walked across the border and congregated on the U.S. side awaiting the opportunity to head to points north. In the interim, they were vulnerable to attacks by bandits. Residents of border communities saw their property overrun and vandalized on a regular basis. Motorists on major north–south highways often had to swerve to avoid hitting migrants running across the road at night. On average, two fatalities per day could be attributed to this cause.

The situation changed in 1994 when the Clinton Administration made control of illegal immigration one of its top priorities. Increased resources became available for a multiphase enforcement strategy known as Operation Gatekeeper. Its goal was to reduce illegal immigration into San Diego, forcing alien traffic eastwards to deter or delay access to urban areas. The operational tactics and deployment of resources were specifically tailored to the geography, crossing patterns, and characteristics of aliens who attempted

to enter the U.S. illegally through San Diego. The early phases coincided with the devaluation of the peso in December 1994, creating an even greater lure for Mexicans to seek work in the U.S.

Within 2 years, the number of Border Patrol agents had doubled. Permanent highway checkpoints were established. Twenty-seven miles of reinforced fencing existed, supplemented by motion-detecting sensors and thermal imaging devices. Horse and canine patrols were used. Ports of entry were strengthened with computer-based identification systems and increased lighting. Partnerships with local law enforcement agencies were expanded. The U.S. Attorney aggressively prosecuted illegal re-entry after deportation.

The result was that Operation Gatekeeper achieved its initial goal of moving illegal crossers to eastern San Diego County. Border neighborhoods were safer, and smugglers' fees had more than doubled (1). Border Patrol agents estimate that nearly 95% of migrants use the services of a smuggler; average cost is \$2000. Apprehension rates began to drop (483,815 in FY 1996, 31% of the national total; 283,889 in FY 1997, down to 20% of the national total; 110,075 in FY 2001, 9% of the national total). In 1996, the East County Initiative began to push this progress further eastward, reaching Imperial County in 1997 and the Arizona border in 1999.

However, success for Operation Gatekeeper has not come without a human cost. Three recent studies have taken a long, hard look at the result of enhanced border enforcement in urban areas. The University of Houston Center for Immigration Research has undertaken a major analytical study (2) to assess how intensified border campaigns have affected migrant death patterns along the entire U.S.–Mexico border, from San Diego to McAllen, Texas (from 1985 to 1998). The study used vital registration data supplemented by interviews with Border Patrol agents, law enforcement officers, and coroners' personnel. This comprehensive study found that deaths from hyperthermia and hypothermia have risen dramatically so that by 1998, deaths from these weather-related causes were three times as common as in the mid-1980s. A clear eastward gradient is also noted.

The second study was sponsored by the Center for Comparative Immigration Studies at the University of California, San Diego (3).

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It covers the period from 1993 to 2000. The author can find no good evidence that the Border Patrol strategy of “prevention through deterrence” has been effective in reducing migrant flow. First-time migrants are not deterred; repeaters are not discouraged. Rather, by deliberately placing migrants in harm’s way through spatial redistribution eastward, the strategy has contributed to migrant deaths. In 1996, the southwest border total deaths numbered 87; in 2000 that total was 499. Again, environmental causes were largely to blame.

Most recently, Ken Ellingwood has written about the border in graphic detail (4), starting with the Treaty of Guadalupe Hidalgo in 1848. His book recounts conversations with border agents, coroners, human rights workers, residents from both sides of the border, and men and women who have successfully or unsuccessfully crossed the border. He addresses many of the historical, political, and humanitarian issues that face both nations.

Most vivid are the details of two mass fatalities: 13 dead Salvadorans in Organ Pipe Cactus National Monument, AZ, in July 1980; 14 dead Mexicans near Yuma, AZ, in May 2001. Having worked on one of these cases (Salvadorans), the perspective I can add is that of the forensic anthropologist faced with the death of so many in a single incident, as well as the more typical weekly toll. As the forensic anthropologist for the San Diego County Office of the Medical Examiner and the Imperial County Coroner since 1994, and having worked in Tucson from 1977 to 1985, I have experienced these trends firsthand.

### San Diego County

Just 20 miles east of the Pacific Ocean, San Diego County becomes a land of rugged, remote topography with mountain peaks exceeding 6000 feet (see Fig. 1). It can be a rough 2-day or more hike from the border to the highway (6), through small towns, ranches, wilderness areas, vast expanses of the Anza Borrego Desert State Park. From mid-October to mid-April, migrants face subfreezing temperatures and, often, snow. In summer, temperatures

soar over 100°F, and afternoon thunderstorms are common, often producing lightning strikes and flash flooding.

As a result of Gatekeeper, beating the Border Patrol now took a more serious physical effort, more often resulting in injury or death. Capture might be less likely, but the environmental dangers mounted. The Border Patrol Search, Trauma, and Rescue (BORSTAR) initiative began in July 1998 as one element of the Border Safety Initiative (BSI), a campaign to reduce injuries and prevent fatalities in border areas (7). BORSTAR teams record at least three rescue operations per day in the San Diego summer. Death can result from exposure, dehydration, suffocation in the back of a smuggler’s van, or speed-related motor vehicle accidents.

The BSI comprises three elements: (i) BORSTAR search and rescue element, targeting hazardous areas where migrants may become lost, abandoned, or in distress due to difficult terrain and the willingness of smugglers to lead them into dangerous territory; (ii) prevention element, working together with Mexican officials to identify dangerous crossing points along the entire southwest border, discouraging illegal crossings and addressing safety problems through public service announcements on radio and TV and signage warning of the realities and dangers of particular routes. One such sign shows a mourning family huddled around a coffin, with the wording: Your brother trusted a “coyote”; Think of your loved ones, don’t risk your life; (iii) identification element, establishing procedures and resources to help officials identify those who have died attempting to cross the border. The seriousness of this last problem is reflected in the fact that in FY 2000, 37% of the nearly 400 border crossers who died nationwide were unidentified (8).

The San Diego sector has implemented procedures to follow when agents encounter any deceased individual (who may or may not be a border crosser). These procedures include: secure the scene; identify the location through the global positioning system (GPS) coordinate system; contact the appropriate law enforcement agency and the medical examiner; contact the appropriate Consulate, if one can be determined; contact the Sector Evidence Team if there is Border Patrol involvement; hold and interview accompanying subjects, if any.



FIG. 1—Aerial view of the southwest border. The dashed line is the international border. Below is Baja California, above are California and Arizona, separated by the Colorado River. The large body of water in the center is the Salton Sea, in northwest Imperial County (5).

Identification procedures in San Diego and the rest of California are influenced by Senate Bill 1736, "Unidentified Bodies and Human Remains," the so-called John Doe bill, signed by the Governor on 31 August 2000 (9). This bill requires, in part, that any postmortem examination of unidentified human remains must include a dental examination by a qualified forensic dentist and the preparation of a final report of investigation containing specified information for submission to the Department of Justice.

A DNA sample must also be submitted. Unidentified remains may not be cremated or buried until specified samples are retained. The bill was sponsored by the California Society of Forensic Dentists in an effort to achieve consistency in evidence collection and retention. Neither San Diego nor Imperial County cremates any of these remains; instead, they are buried in dedicated areas of local cemeteries.

The Border Patrol maintains a database of all persons who are rescued or who die attempting to cross the border. Information provided for the decedents by the medical examiner's office includes ME case number, date of death/discovery, name, race, sex, age (if known or can be determined), mode and cause of death, and place of death. Detailed records for San Diego County go back to 1993.

A total of 558 migrant deaths are recorded in San Diego County for the period from 1993 to 2004. Of these, 184 deaths are determined to be unrelated to attempting or furthering entry into the U.S., leaving 374 deaths over the past 12 years in the course of illegally entering this country. The demographic profile, based on identification media if available or anthropological analysis, includes ages 14–75, though the most common age is 20–29. Eighty-eight percent are males. In a typical year, nearly 99% of the migrants originate in Mexico. Of the remaining 1%, about one-quarter come from Brazil, another quarter from Guatemala.

Motor vehicle accidents and exposure (hyper- and hypothermia) are the primary causes of death. The accidents are often because of an overloaded van fleeing a patrol car, sometimes speeding the wrong way down the highway. Drowning deaths have decreased as passageways have moved inland from the ocean (23 in 1995, <5 in each year since).

Migrant caseload as a portion of total caseload for the San Diego Medical Examiner's Office has decreased. From a high in 1995 of 2.2% (56 out of 2552 total cases), the percentage of migrant cases now hovers around 1%. I had expected the percentage of migrant cases to be higher, given that these cases comprised >40% of my caseload from 1995 to 1998. Decomposition occurs quickly here; within a week or two, a body can be reduced to dark leathery skin and bones held together by desiccating ligaments, often scavenged by animals. While not a significant drain on medical examiner facilities and personnel, each fatality must be investigated and the remains stored until a disposition is decided.

Many of these individuals are eventually identified, often with assistance from the Mexican Consulate, using personal effects (such as a distinctive belt buckle) or missing persons' reports and, in one instance that I am aware of, a private investigator hired by family members in Mexico. This particular case involved five male decedents found in December 1995, all fairly close in age, ancestry, and size. The private investigator brought identification media (such as voter's identification cards) from the families, including a radiograph for one man showing a fractured left ninth rib. One set of remains showed a healed fracture at the same site. But for the majority of these individuals, there are minimal medical or dental records available.

Out of the 106 migrant deaths recorded from 2000 to 2003, 21 (20%) still remain unidentified. New ways of comparing antemortem and postmortem data may reduce that number. Baylor

University's Lori Baker has begun a DNA database, using samples and postmortem information submitted by coroners and medical examiners. Families of the missing are encouraged to provide descriptive data to this database. Details are provided elsewhere in this volume (10).

The Mexican Ministry of Foreign Affairs (Secretaria de Relaciones Exteriores) has instituted their own database to identify the dead and locate relatives, known as the System for the Identification of Remains and Localization of Individuals (SIRLI), or *Sistemas de Identificación de Restos y Localización de Individuos* (11–12). It also uses information obtained from families of missing migrants, along with photographs and fingerprints, and is linked to the Baylor database. The database is in use by all 47 Mexican consulates in the U.S.

A welcome recent development is the first-time cooperation of U.S. and Mexican personnel to identify human skeletal remains found on the Mexican side of the border. In September 2004, bones and clothing were found in the rugged country near Tecate, believed to be the remains of a young Ecuadorian woman who had been left behind by smugglers 3 years prior. Survivors of that trek described the location as best they could, and eventually the site was located. Mexican authorities retained an incomplete cranium, a partial left tibia and fibula, and fragments of right hip and left scapula. They gave two incomplete femora and a fragment of left hip to American authorities. On 8 June 2005, I went to Tecate with an agent of the Border Patrol Mexican Liaison Unit to examine the remains *in toto*, with the assistance of representatives from the Baja California State Police.

As best as can be determined from these incomplete remains, they represent an adult female, under 30 years of age, most likely Native MesoAmerican, about 55 inches tall with a light build, with a postmortem interval of 1 to 3 years. This biologic profile is consistent with the Ecuadorian woman. A DNA match with family members back in Ecuador is now in progress. It is hoped this will not be the last such cooperative effort.

### Imperial County

Effects of increased border security in San Diego County are clearly seen in Imperial County, which encompasses about 3700 square miles between San Diego and the Arizona border, also known as the El Centro sector. Imperial County is largely desert; with irrigation, parts of it have become productive farmland. Migrants crossing here face a perilous 20–30-mile walk to the highway, contrary to what the smugglers tell them. In summer, temperatures can range from 80 to 120°F. A typical year has more than 100 days of >100°F heat. It is impossible to carry enough water for this hike. Bodies are rarely found in the summer though, because it is simply too hot for the hikers or off-roaders who often find remains at other times of the year.

In winter, temperatures range from 80°F to subfreezing, with a 40° differential in a single day and the possibility of chilling rain or snow. Few migrants are dressed for these unexpected conditions, and they slowly succumb to hypothermia. Along with exposure, a major cause of migrant death in this desert is, oddly, drowning (2,4). The primary water hazard is the All-American Canal, a concrete-lined aqueduct for agricultural irrigation that parallels the border for 82 miles. It is the width of a football field and 7–20-feet deep. The Canal is notorious for its strong undercurrent. Rubber rafts overloaded with migrants easily capsizes. Other migrants attempt to float into the U.S. on the New River, which is so polluted with industrial waste and typhoid, cholera, and hepatitis bacteria that the Border Patrol will not send its agents in to rescue

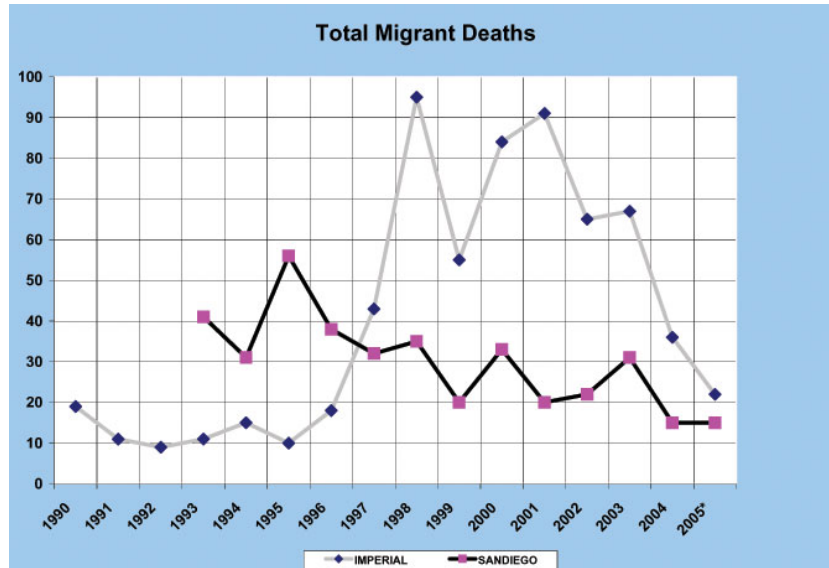


FIG. 2—Total migrant deaths. A comparison of migrant deaths from San Diego and Imperial Counties, 1990–2005 (\*as of 1 August 2005).

people in trouble. Drowning deaths in the El Centro sector rose from 3 in 1996 to 15 in 1997 and 24 in 1998.

Decomposition in Imperial County proceeds even more rapidly than in San Diego County. Exposure and carnivore activity quickly reduce remains to bleached bone. When skin does persist, it is very hard and leathery. Remains are found scattered in the desert or military bombing ranges, in the mountains, or huddled in dry washes. Multiple individuals are often found together.

For Imperial County as a whole, migrant deaths in 1990 represented 8.19% of the total caseload (19 out of 232). In 1997, they were 20.67% of the total (43 out of 208), with an increase to 38.01% in 2000 (84 out of 221). 1998 and 2001 were particularly deadly for migrants, with 95 and 91 deaths, respectively. The numbers have slowly decreased since 2001, as migrants are pushed further eastward into Arizona.

Unlike San Diego County, the migrant caseload seriously impacts the Imperial County coroner’s workload. The limits of the office, with respect to funding, personnel, equipment, and body storage, are severely taxed. Imperial County does not benefit from the tourism and military industries that fund San Diego. The Coroner shares office space with the Sheriff. They use a contract pathologist; autopsies and forensic anthropological examinations are performed at a local funeral home. Oftentimes, these examinations are performed outdoors, so the odor of decomposition does not seep into the funeral parlor.

Figure 2 clearly shows the decrease in San Diego County migrant deaths and corresponding increase in Imperial County as a result of the eastward border enforcement beginning in 1994. Now, after 7 tough years, the dynamic has shifted across the Arizona state line, with the expected consequences.

**Conclusions**

Any discussion of illegal border crossing between the U.S. and Mexico is fraught with political and cultural issues, such as the need to enforce enacted laws, maintain security, and caretake human rights. While politicians debate whether or not a border emergency exists and responsibility passes from one jurisdiction to another, people continue to cross this international border in search of a better life. They are lured by the incentives of jobs, medical

care, a driver’s license, rumors of amnesty. Some will be successful, some will be caught and repatriated, and some will die trying. They are betrayed by smugglers, beset by gangs, beaten, robbed, packed in hot, airless vans, hit by cars, drowned, abandoned to the elements. These are the individuals who come to the attention of the medical examiner or coroner and forensic anthropologist. At this point, medicolegal issues supersede sociopolitical ones. The deaths need to be investigated, remains autopsied and identified, next of kin notified.

The traditional means of identification do not necessarily work with these remains, because of lack of accessible antemortem data. Cooperation between forensic scientists, between investigative agencies, between nations is necessary to prevent the designation of “no identificado.” We have made a good start with this symposium, and our work continues.

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