



BMI
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**THE “FUNNEL EFFECT” & RECOVERED BODIES
OF UNAUTHORIZED MIGRANTS PROCESSED
BY THE PIMA COUNTY OFFICE OF THE MEDICAL EXAMINER, 1990-2005**

BY

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**REPORT SUBMITTED TO THE
PIMA COUNTY BOARD OF SUPERVISORS**

The Binational Migration Institute (BMI) is a part of the Mexican American Studies & Research Center at the University of Arizona

“It is not merely death and the
moment of death that is sacred.
If we can see the world in
real clarity, it is all of life and
existence itself that is sacred.”

(Ira Byock, “The moment of death,” September 16, 2005)

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SUMMARY OF FINDINGS

The Binational Migration Institute (BMI) of the University of Arizona's Mexican American Studies and Research Center (MASRC)¹ has undertaken a unique and scientifically rigorous study of all of the unauthorized border-crosser (UBC) deaths examined by the Pima County Medical Examiner's Office (PCMEO) from 1990-2005. Because the PCMEO has handled approximately 90% of all of the UBC recovered bodies in the U.S. Border Patrol's Tucson Sector, an analysis of such deaths serves as both an accurate reflection of the major characteristics of all known UBC deaths that have occurred in this sector, as well as an exact, previously unavailable portrayal of the UBC bodies that have been handled by the overburdened PCMEO since 1990.

BMI has also created a comprehensive and reliable set of criteria that can be used to better count and describe known UBC deaths throughout the entire U.S.

A reliable analysis of known UBC deaths in the Tucson Sector is important for many reasons, but especially because, according to all available figures produced by the U.S. government and the academic community, a comparison of the totals of such deaths for each of the 9 Border Patrol sectors along the US/Mexico border, shows that the Tucson Sector in southern Arizona has been the site of the vast majority of known UBC deaths, or to use a more accurate phrase, UBC recovered bodies, in the new millennium.

The results of the BMI study, which are confirmed by comparable research, show that there has been an exponential increase in the number of UBC recovered bodies handled by the PCMEO from 1990 to 2005, thereby creating a major public health and humanitarian crisis in the deserts of Arizona.

Over this period of time, the PCMEO has examined **927** UBC recovered bodies, that is, according to the U.S. Government Accountability Office (GAO 2006), at least **78%** of the unprecedented increase in known border-crossing deaths along the entire southwest border of the U.S. from **1990-2003**.

The BMI study was also specifically designed to test the much-discussed causal, structural link between the “funnel effect” created by U.S. immigration control policies and the immense increase in known UBC deaths. These so-called prevention-through-deterrence measures, initially implemented in the mid- to late-1990s, that intentionally re-directed hundreds-of-thousands of unauthorized migrants away from previously busy crossing points in California and Texas into Arizona’s perilous and deadly landscape.

BMI’s findings unambiguously confirm previous evidence that such U.S. policies did create the “funnel effect” and that it is indeed the primary structural cause of death of thousands of North American, Central American, and South American unauthorized men, women, and children who have died while trying to enter the U.S.

Among other additional findings and insights provided by BMI, the major results of this study are as follows:

- *From 1990-2005, the PCMEO processed 927 UBC decedents. During this period of time, there has been a startling, 20-fold increase in known UBC deaths in the Tucson Sector. Prior to the “funnel effect” in 1990, for instance, there were 9 known UBC deaths investigated by the PCMEO. In 2005, after the “funnel effect” was in full swing, the PCMEO examined and attempted to identify 201 known UBC deaths. The PCMEO and other Mexican and U.S. agencies have been unable to identify more than a quarter of all of these deaths. The unidentified have either been released to the Pima County Public Fiduciary for burial in anonymous pauper’s graves or stored in the overflowing Pima County morgue to provide more time for successful identification.*

- *During the “pre-funnel effect” years (1990-1999), the PCMEO handled, on average, approximately 14 UBC recovered bodies per year. In stark contrast, during the “funnel effect” years (2000-2005), on average, 160 UBC recovered bodies were sent to the PCMEO each year.*
- *BMI has produced the first-ever list of all of the identified UBC recovered bodies handled by the PCMEO from 1990-2005.*
- *There has been a statistically significant increase in such deaths due to exposure to the elements (especially heat-related deaths) and a decrease in deaths due to all other causes.*
- *A binary logistic regression analysis also indicates that, when controlling for age, men appear to be more likely to die of homicide than women (though, the vast majority of men die of heat-exposure).*
- *The same regression analysis also indicates that, when controlling for age, women appear to be more likely to die of heat-exposure than men. BMI has also become aware of anecdotal, thus far unsystematic, observations from EMT and hospital emergency room staff in southern Arizona that indicates that after being traumatized by heat or in a motor vehicle accident, some number of pregnant UBCs have survived but lost their unborn children to “intrauterine fetal demise.” As it stands, tallies of known UBC deaths have not yet captured this phenomenon because such deaths do not go to the medical examiner’s office.*
- *Over 80% of the UBC individuals handled by the PCMEO have been under age of 40, and there is a discernable, upward trend in the number of dead youth under the age of 18 years old. When controlling for biological sex, regression results further indicate that such youth are 3.4 times more likely to die in motor vehicle accidents than adults.*

- *Regression analysis also indicates that there has been a statistically significant decrease in the number of UBC recovered bodies from northern Mexico and a significant increase in the number of such decedents from central and southern Mexico.*
- *If it is true that today more vulnerable people from central and southern Mexico make up a larger proportion of all UBCs than in the past, as suggested by previous research, then this might help to explain why the number of UBC recovered bodies has continued to increase while the official estimates of the number of UBCs crossing into the Tucson Sector has, in contrast, decreased since 2000.*
- *From the late 1990s to the present day, as known UBC deaths significantly decreased in adjacent Border Patrol sectors, the number of such known deaths, especially deaths due to heat-exposure (always the leading cause of UBC deaths in southern Arizona) significantly increased in the Tucson Sector.*

STUDY GOALS & OBJECTIVES

For almost a decade now, there has been an unprecedented increase in the number of known unauthorized border-crosser (UBC) deaths in the deserts and mountains of southern Arizona. Various academic and government studies have estimated that over 1,000 bodies of men, women, and children have been found in this inhospitable terrain bordering Mexico (inclusive of the US Border Patrol's Tucson Sector). Experts, including the US Government Accountability Office, now explain this crisis as a direct consequence of US immigration control policies initially instituted in the mid-1990s.

These “prevention-through-deterrence” measures ultimately funneled unauthorized border crossers away from previously popular, urban border crossings in California and Texas into Arizona's remote, harsh geography.² Indeed, former INS commissioner Doris Meissner told the *Arizona Republic* that the INS knew that the crackdown, especially in San Diego, would push migrants into the mountains and deserts of eastern California and Arizona. She said, “We did believe that geography would be an ally to us ... It was our sense that the number of people crossing the border through Arizona would go down to a trickle, once people realized what it's like” (*Arizona Republic* 8/10/2000).

The significantly increased numbers of known UBC deaths along the US/Mexico border following intensified militarization and fortification of the border is now well-documented and has long been decried by national and international human rights and humanitarian-aid groups, among others. In the summer of 2006, Senate Majority Leader Bill Frist referred to it as a “humanitarian crisis,” and Centers for Disease Control &

Prevention (CDC) researchers have concluded that it is “emerging as a major public health issue” (Sapkota et al. 2006:1).

It is conservatively estimated that over 3,600 unauthorized border crosser bodies have been recovered on U.S. soil from 1995-2005 (Nevins 2006:1). “To put this death toll in perspective, the fortified US border with Mexico has been more than 10 times deadlier to migrants from Mexico during the past nine years than the Berlin Wall was to East Germans throughout its 28-year existence” (Cornelius 2005:782). And, there is no indication that the massive amount of suffering and death along the US/Mexico border will come to an end any time soon. According to the GAO (2006:16), for instance, there were more deaths along the border in the first 9 months of 2006 (291) than in the first 9 months of 2005 (241).

Primarily due to methodological limitations, however, previous research does not provide a fine-grained portrayal of such deaths in Arizona. Furthermore, other studies were not specifically designed to test the assumed structural correlation between the “funnel effect” created by US immigration control policies and the increase in known migrant deaths in Arizona.

No previous research focuses on the UBC recovered bodies processed by the overburdened Pima County Medical Examiner’s Office (PCMEO) in Tucson, Arizona (which is conservatively estimated to have handled more than 90% of all the recovered bodies of unauthorized border crossers in the Border Patrol’s Tucson Sector, the site of the vast majority of such known deaths since 1995, according to the US Government Accountability Office).

The Binational Migration Institute (BMI) study presented herein (funded in part by the Pima County Board of Supervisors) provides unique and scientifically reliable data specifically regarding these areas of concern. The major goals of this study are as follows:

- *Create standardized criteria for culling out unauthorized border-crosser deaths from all other types of deaths recorded in autopsy reports produced by medical examiners. BMI's expanded criteria emerged from a review and comparison of the categories used by previous researchers, the PCMEO's own criteria post-2000, the US Border Patrol's Border Safety Initiative Tracking System (BSITS), and an assessment of why known border-crossing deaths revealed by BMI's analysis of PCMEO autopsy reports were overlooked or excluded by other published counts of such deaths.*
- *Demonstrate the increased accuracy of data on unauthorized border-crosser known deaths produced by a careful, first-hand analysis of autopsy reports produced by medical examiners (rather than, for instance, death certificates archived in national and state vital statistics systems). This was done by BMI researchers who reviewed autopsy reports filed by the Pima County Medical Examiner's Office (PCMEO), which has handled more recovered bodies of unauthorized border crossers than any other medical examiner's office in the US from 1995 through the present day.*
- *Produce a more detailed and accurate portrayal of known border-crossing deaths processed by the PCMEO from 1990-2005 through cross-sectional/aggregate statistics on and multivariate statistical analysis of, for instance, various causes of death, place of origin of decedents, biological sex and age of decedents, and the number of deaths by month and year.*

- *Analyze the number and characteristics of the recovered bodies of unauthorized border crossers handled by the PCMEO in terms of the “funnel effect” created by US immigration control policy. This has been done by generating trend data that compares, for example, the increase in such deaths recorded by the PCMEO and the corresponding decrease in such deaths in other US/Mexico border areas, as well as by illustrating the increase in PCMEO deaths due to exposure (including heat exposure, the number one cause of death). Substantial changes in the numbers and types of known unauthorized migrant deaths associated with the “funnel effect” are also revealed through a comparison of figures (tested for statistical significance) for “pre-funnel effect years” (1990-1999) and “funnel effect years” (2000-2005).*
- *Assess various official and unofficial efforts made over the years to reduce the risk of unauthorized migrants suffering and dying in southern Arizona. Unofficial efforts include those made by community-based groups and humanitarian-aid organizations.*

CLASSIFYING, COUNTING, & ANALYZING UBC RECOVERED BODIES

US Border Patrol Significantly Underestimates UBC Recovered Bodies

The BMI criteria detailed below is more inclusive than that used by the US Border Patrol. Of all the published counts of UBC recovered bodies across the entire US/Mexico border, official US Border Patrol figures are the least inclusive, resulting in the smallest reported totals year after year. Human rights organizations (e.g., Arizona-based *Coalición Derechos Humanos, No More Deaths, Good Samaritans, & Humane Borders, American Friends Service Committee, Human Rights Watch, Amnesty International, & the Catholic Church's U.S. Bishops' Committee*) and the media (especially Arizona's major newspapers such as *The Arizona Republic, The Tucson Citizen, and The Arizona Daily Star*) have long criticized Border Patrol numbers on UBC recovered bodies. In 2003, for example, the *Arizona Daily Star* and the *Tucson Citizen* revealed that Border Patrol figures omitted many known UBC deaths (e.g., Olson et al. 2004). An investigation by the *Tucson Citizen* found, for instance, that the Border Patrol undercounted such deaths by 43% (LoMonaco 7/30/03).

In order to keep their readers properly informed, numerous Arizona newspapers report alternative counts of the number of known UBC deaths rather than relying on official government underestimates (e.g., go to the "Border" link at www.azstarnet.com). Similar to independent counts also being produced by human rights organizations such as *Coalición Derechos Humanos/Alianza Indígena Sin Fronteras* (i.e., www.derechoshumanosaz.net), Arizona's media outlets collect data from medical examiners, county coroners, Mexican Consulates, and the Border Patrol. *Derechos*

Humanos, a migrant human rights group, appears to produce the most inclusive figures, in part, because they also integrate data from the Consular offices of Guatemala, El Salvador, Honduras, and Brazil.

A recent US Government Accountability Office comparison of 2002-2005 yearly totals produced by the Pima County Medical Examiner's Office (PCMEO) and the Border Patrol for all known UBC deaths occurring *in* Pima County, Arizona, reveals serious discrepancies prior to 2005 (GAO 2006:14).³ The US Border Patrol undercounted known deaths in 2002 by 44 (32%), in 2003 by 56 (43%), and in 2004 by 46 (35.4%). In 2005, when the US Border Patrol started to more fully integrate PCMEO data, according to the GAO, they only undercounted the total of known UBC deaths *in* Pima County by 1. Nevertheless, the GAO's finding for 2005 is questionable. Even if the Border Patrol got closer to a more accurate count for known UBCs *in* Pima County, there is still a significant difference between the *Arizona Daily Star's* total count of known UBC deaths for **all** of Arizona in 2005 (221) and the Border Patrol's total count for the entire state in 2005 (172)—in fact, according to these figures, the Border Patrol undercounted slightly more UBC recovered bodies in 2005 than in 2004 (Swedlund 3/30/06).

The inaccuracy of Border Patrol figures appears to be primarily a consequence of a very narrow set of criteria for classifying a death as a UBC death. In 2000, the Border Patrol initiated the Border Safety Initiative Tracking System (BSITS), a database restricted by the Department of Homeland Security that, according to the GAO (2006), includes numbers on deaths, type of death, disposition of death, GPS location of

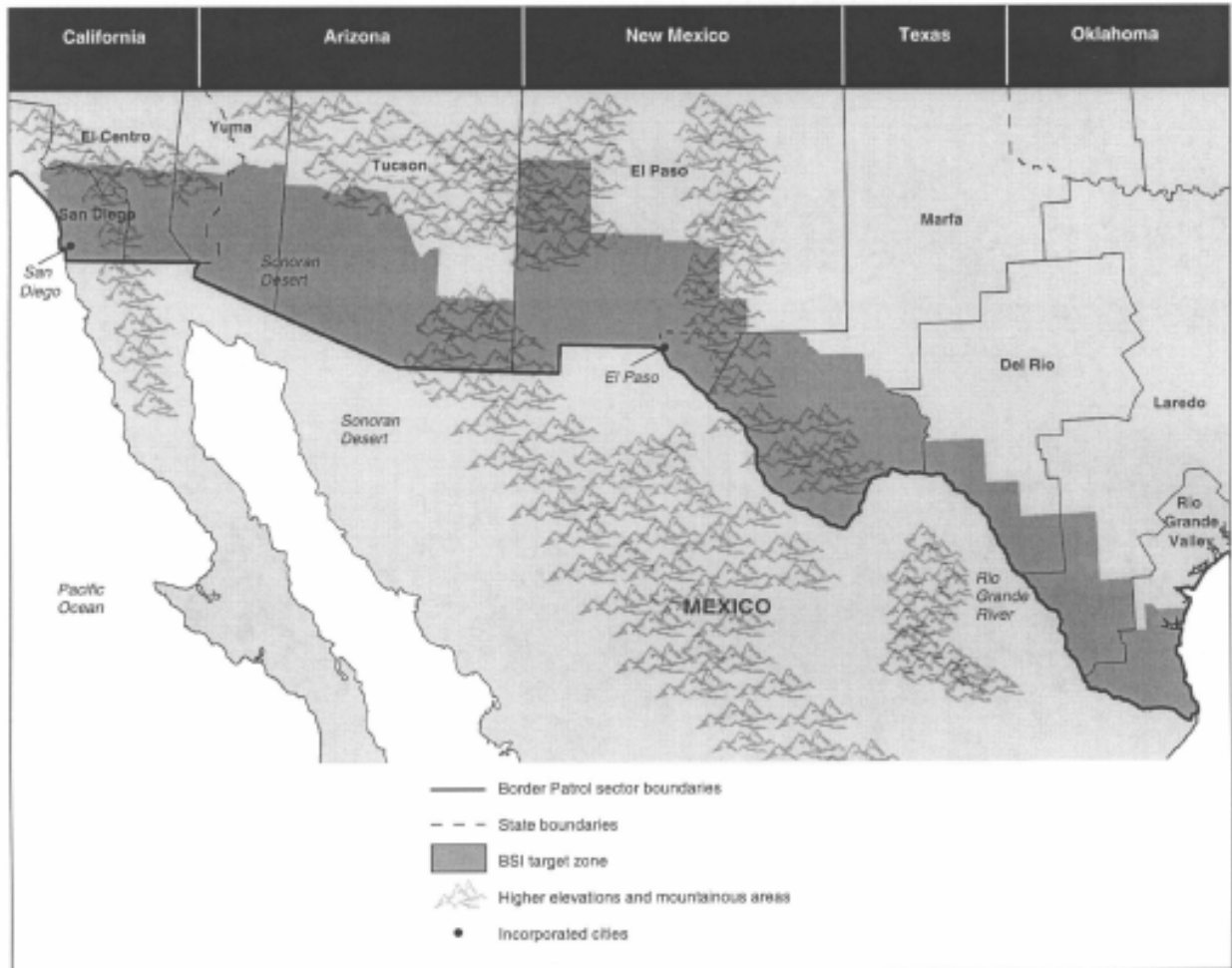
recovered bodies, and rescues, among other data. Nonetheless, in general, a death is included in the BSITS as a UBC death only if it meets the following conditions:

- The death occurs during the furtherance of an illegal entry.
- The death occurs within the Border Safety Initiative (BSI) “target zone” (which includes 45 counties on or near the US/Mexico border or 9 of the 20 Border Patrol sectors)—see *Map 1, Border Patrol Sectors & the BSI Target Zone along the US/Mexico Border (GAO 2006)*.
- The death occurred outside of the BSI “target zone,” but the Border Patrol was directly involved in the case.

Each of these criteria necessarily results in an undercount of known UBC deaths. First, determining when a UBC has reached his/her destination and is no longer in furtherance of an illegal entry can be very difficult to ascertain. It can actually take some unauthorized migrants many months and many stopovers in various places before they reach their final destinations. Some even take on short-term employment in one location as, for instance, agricultural workers before settling in another location (e.g., Eschbach et al. 2003:11). This limitation also excludes unauthorized migrants who have established residency in the U.S., but who still, on occasion, travel back and forth across the US/Mexico border for various reasons.⁴

Second, the Border Patrol also omits known UBC deaths by restricting their count to cases occurring within the BSI “target zone”⁵ or those in which in the Border Patrol has been directly involved (therefore, for example, many of the UBC bodies recovered by Tohono O’odham officials on their Connecticut-sized lands southwest of Tucson have not been counted by the Border Patrol—it has been estimated that almost two-thirds of Arizona’s crossing fatalities in 2002 occurred within the boundaries of the Tohono O’odham nation).

Map 1. Border Patrol Sectors and the BSI “Target Zone” along the U.S./Mexico Border (GAO 2006)



Source: GAO; U.S. Border Patrol.

Across the entire US/Mexico border region as well as in the country's interior, numerous, well-known UBC deaths have been excluded from official Border Patrol tallies due to such restrictive criteria. These include, for example, 19 men found dead in the back of a tractor-trailer in Victoria, Texas in 2002 and 11 people found dead locked in a boxcar in Iowa in the same year. The second group of seven men and four women died on their way to seek landscaping and construction jobs in Florida (Weiner 10/20/02). They had crossed into the U.S. four months earlier.

As noted by Cornelius (2001, 2005) and the GAO (2006), Border Patrol statistics on UBC deaths also tend to be unreliable because they exclude skeletal remains, even when such remains have been found on high-traffic migrant trails. The PCMEO, in contrast, does now include skeletal remains and decomposed bodies found under such circumstances. The Arizona heat and predatory desert animals can quickly dismember the remains of a human body. Sometimes this takes only a few short days (e.g., Eschbach et al. 1999:437). The Border Patrol also excludes unauthorized migrants who die while in their custody and those who die of "natural causes" (e.g., border crossers who die of a heart attack while in transit from Mexico to the US), and it omits deaths of suspected human smugglers or, as they are now commonly referred to, "coyotes."

Additionally, the GAO has recently criticized Border Patrol figures on known UBC deaths because "The Border Patrol's approach to tracking and recording deaths has not been implemented consistently across sectors" (GAO 2006:25). The authors of the GAO report go on to argue that even recent BSI revisions in its methodology for counting such deaths are still unsatisfactory because they do not "specify the frequency with which sector coordinators are to conduct this outreach nor does it outline the methods that

coordinators should use to share information about migrant deaths with county coroners or local medical examiners” (GAO 2006:26).

Limitations of Other Published Counts of Known UBC Deaths

While the GAO’s recent 2006 report on the significant increase in known UBC deaths associated with U.S. immigration control policies found most of the major published studies sufficiently reliable for identifying trends in such deaths over time and across locations, many of them also underestimate the total number of such deaths, though not to the degree found in Border Patrol numbers. The well-known and, in many other ways, groundbreaking series of reports on known migrant deaths along the entire US/Mexico border produced by scholars at the Center for Immigration Research at the University of Houston (e.g., Eschbach et al. 1999; Eschbach et al. 2001; Eschbach et al. 2003) , for instance, rely, in part, on vital statistics registries (based on death certificates) that, as pointed out by Cornelius (2001:669), “neither identify the immigration status of the decedent nor specify whether death occurred as the result of an attempted illegal entry into the United States” (also see Reyes et al. 2002). Furthermore, death certificate data, as recently noted by scholars at the Centers for Disease Control & Prevention (CDC) is less detailed than that provided by medical examiners (Sapkota et al. 2006:5). The National Center for Health Statistics (NCHS), which collects records on all deaths in the U.S., is, for instance, a problematic source for information about known UBC deaths because the NCHS counts all unidentified bodies as U.S. residents.

Actually, the CDC’s own recent study of known UBC deaths in US/Mexico border counties in Arizona, New Mexico, and Texas from 2002-2003 also used a relatively narrow criteria for classifying a death as a UBC case (Sapkota et al. 2006). It

did not include, for example, decedents who died after being in the U.S. for more than 30 days, who died in a U.S. hospital, or whose immigration status was undetermined. (BMI has not yet had the opportunity to determine whether or not these limitations resulted in a significant undercount of known UBC deaths in this study.)

Even the GAO's seemingly definitive 2006 study of known UBC deaths along the entire US/Mexico border may be an actual undercount of such known deaths because it excludes decedents whose cause of death was undetermined, under pending investigation, found to be a "natural cause," the unidentified, and those who died outside of the BSI "target zone," even *if* the Border Patrol was directly involved in the case (GAO 2006:38-41).

Excluding cases due to an unknown cause of death or undetermined identity is especially problematic because these are not uncommon characteristics of known UBC deaths. BMI findings show, for instance, that 197 (21.2%) of the 927 UBC cases handled by the PCMEO from 1990-2005 had undetermined causes of death and that 247 (26.6%) remained unidentified at the time of this writing. Based on years of experience in handling and attempting to identify UBC recovered bodies, the PCMEO, in contrast, now attempts to classify all decedents who perish while in transit from Mexico to the U.S. as UBC deaths, irrespective of the cause. Additionally, the PCMEO is confident that all of the approximately 130 unidentified UBC bodies in storage at the Pima County morgue in the summer of 2006 are indeed ill fated migrants.

Inherent Limitations of Any Count of UBC or “Migrant Deaths”

Of course, every serious researcher who has attempted to estimate the number of unauthorized border crossers who have died in the U.S. has pointed out that the actual number of migrant deaths is, at present, unknowable. Most assume that there are actually far more deaths than have been discovered (e.g., Cornelius 2001, Eschbach et al. 2003; Nevins 2003:5-6), especially given the relative invisibility and covert circumstances of deaths that occur in the remote, inhospitable areas along the US/Mexico border.

Others, such as the Border Patrol, suggest that most UBC deaths are ultimately discovered. Though, the Border Patrol’s logic regarding this issue is ultimately problematic regarding the history of its own counts. A common response offered to the media by Border Patrol officials when they are asked about reported increases in known UBC deaths is, for instance, that such numbers might not reflect an actual increase in such deaths but rather improved chances of finding such bodies due to increased Border Patrol technology and manpower. If the quality of recently intensified Border Patrol search and rescue resources is indeed the main determinant of the number of bodies found and counted, then one would have to conclude that all previous counts of known UBC deaths are inaccurate underestimates.

The poignant story of one man’s recent determination to find his daughter’s undiscovered remains in the Arizona desert further suggests that current estimates of known UBC deaths are indeed undercounts of all such deaths.

Lucrecia Dominguez Luna, a 35 years-old mother from Zacatecas, Mexico, collapsed from heat exhaustion after getting about 37 miles into the U.S. Her young son survived the ordeal. Based on information from her son about where she perished & her

personal effects, Cesario Dominguez, Lucrecia's father, spent weeks searching the Altar Valley for her remains. The humanitarian-aid group *No More Deaths* assisted him; Border Patrol officials helped for only one day. Miraculously, Cesario eventually came upon his daughter's skeletal remains, recognizing her three rings. "What was left was that hand with those rings, there in the sand," said her father.

There is no doubt that the remains of Lucrecia Dominguez would not now be a part of the official count of known UBC deaths if it had not been for the unusual tenacity and efforts of her father. In fact, while Cesario Dominguez was searching for his daughter, he found three more UBC bodies that had been undiscovered by Border Patrol officials (Marizco 7/29/05).

The discovery of the body of a long-time Tucsonan in May of 2006 is yet another example of the Border Patrol failing to find a reported body. Antonio Torres Jimenez perished while coming back into Tucson from Mexico. After the Border Patrol ended their search, Torres' friends continued to look for him (24 people fanned out across the desert to find their friend). They found him in less than 24 hours.

The reason Torres went back and forth across the border illegally? "A couple of years after Torres earned permanent residency, his eldest daughter died in Mexico.... Torres returned to La Loma [Mexico] to be with his wife and remaining children. When he came back to his construction job in Tucson, he learned that he'd violated the terms of his green card because he stayed in Mexico too long. He lost his legal status.... With few jobs back home, Torres continued living and working in Tucson. Torres' wife and children stayed behind and he would travel to see them" (LoMonaco 6/3/06).

Though, to the best of our knowledge, no one has yet attempted to tally up the numerous published examples of reported dead people in the Arizona desert whose remains have not yet been found, such reports are strong evidence that the actual number of UBCs dying is much higher than the number of recovered bodies.

In May 2005, for instance, Jose Ortiz used a cell phone to call for help after his wife and four others died from heat exhaustion (they had crossed into Arizona's Ladrillera Desert ten days earlier). In part because Ortiz's cell phone went dead 14 minutes after he placed his call for help, none of those five bodies have yet been recovered (*Justice, Peace & Integrity of Creation* 2005).

Additionally, no researchers have yet to fully assess or integrate Mexican statistics on border crossers who have died in Mexico (Cornelius 2001; 2005) and the thousands of missing person reports received by Mexican Consulates each year (not to mention such reports from other Central American and South American countries). The Mexican Consulate in Phoenix, Arizona, alone receives approximately 600 missing person's reports a year (Marizco 7/19/05). Many researchers would also be interested in looking at Border Patrol figures, currently unavailable, regarding Border Patrol searches for reported UBCs in distress or reported UBC deaths that came up empty-handed.

BMI has also become aware of anecdotal observations from EMT and hospital emergency room staff in southern Arizona that indicate that some number of pregnant UBCs who have suffered trauma from exposure to the elements or motor vehicle accidents, for instance, survive such incidents themselves but lose their unborn children (i.e., "intrauterine fetal demise"). Because such fatalities are not sent to the medical examiner's office, they would be, almost entirely, omitted from counts of the number of

known UBC recovered bodies. To the best of our knowledge, there is currently no system in place for doing so.

For these reasons, BMI prefers the term **UBC Recovered Bodies** rather than *UBC or Migrant Deaths*, because it is a more accurate description of what is actually being counted at the present time. Virtually all other sources of data and information about the recovered bodies of unauthorized border crossers use the highly misleading term “migrant deaths,” which, in turn, leads to semantic misrepresentations of what is actually known about how many unauthorized migrants are dying in the U.S. (as well as in Mexico).

For many years now, newspaper headlines have incorrectly referred to “Migrant Death Tolls,” when, in actuality, these are unknown. Even those who give humanitarian aid to border crossers perpetuate this misnomer (e.g., Chamblee et al 2006). Likewise, the GAO’s (2006) seemingly authoritative declaration that “Border-Crossing Deaths Have Doubled Since 1995” carelessly implies that the total number of migrant deaths in the U.S. is a known figure when this is not the case. As the GAO (2006:27) itself states, “the total number of bodies that have not been found is ultimately unknown.” All existing references to “migrant deaths” refer only to recovered bodies, not to the presently unknown quantity of all migrant deaths. This is a critical distinction that should not be ignored by experts, government officials, advocates, and the media.

Autopsy Reports Produced by the Pima County Medical Examiner’s Office (PCMEO)

While not necessarily in a position to carry out such research, many scholars who have previously examined known unauthorized border-crosser deaths along the US/Mexico border have previously suggested that an in-depth analysis of actual autopsy

reports (supplemented by other sources) would provide a more accurate calculation of such deaths (certainly the excellent work of the Arizona media demonstrated this years ago).

As a step towards this goal, BMI has, therefore, undertaken an analysis of computerized and hardcopy autopsy reports recorded by the Pima County Medical Examiner's Office (PCMEO)--housed at the Pima County Forensic Science Center in Tucson, Arizona. Since the late 1990s, according to all previously published figures on known unauthorized border-crosser deaths, the largest number of such deaths in the US/Mexico border area has occurred in the US Border Patrol's Tucson Sector (e.g., GAO 2006). It is conservatively estimated that the PCMEO has handled approximately 90% of those cases.⁶

In response to the unprecedented increase in UBC bodies, this medical examiner's office has created an advanced, more nuanced system for identifying UBC bodies not yet utilized by other medical examiners or state- and national-level vital statistics. As suggested by Karl Eschbach and his colleagues (Eschbach et al. 1999: 433-434), who made the first, but ultimately incomplete, attempt to systematically collect relevant data from medical examiners and coroner's offices regarding UBC deaths, such officials are in the best position to provide comprehensive information about these deaths because "they have a legal responsibility to review all accidental and unexpected deaths that occur in their jurisdiction" and "they seek to identify precise causes of death and look for next of kin for corpses that are hard to identify."

Furthermore, as described by Samuel Keim, an associate professor of emergency medicine at the University of Arizona, and his study colleagues who recently reviewed

PCMEO autopsy reports over a short period of time in order to examine heat-related UBC deaths, the PCMEO also has access to a greater variety of useful information and scientific testing than any other agency: “Criteria used by the [PCMEO] for case identification included body discovery locations, autopsy information provided by the [PCOME] forensic pathologists, data from USBP or other law enforcement agencies, a dedicated forensic anthropologist, articles found with the body, and on occasion witness reports of individuals accompanying the immigrants” (Keim et al. 2006:186).

Local and national media reports have made Pima County’s morgue, literally overflowing with UBC bodies recovered from southern Arizona’s wilderness areas over the past few years, a poignant symbol of what Wayne Cornelius, a leading scholar of immigration issues, has described as the clearest and most systematic violation of human rights occurring on U.S. soil today (U.S. Commission on Civil Rights 2002).

In 2005, the PCMEO had to rent a refrigerated trailer to handle the record number of UBC bodies (the \$60,000 cost was covered by the Department of Homeland Security). Subsequently, Pima County spent \$240,000 to build a new storage unit in order to double the capacity of the county morgue (Medrano 7/24/06). Dr. Bruce Parks, the county’s chief medical examiner, estimates that the processing, identification, and storage of recovered UBC bodies costs his office more than \$100,000 annually. Because Parks and his colleagues do their utmost to identify UBC bodies before having to turn unidentified remains over to the Pima County Public Fiduciary for burial or cremation (and, therefore, bringing a likely end to any chances of the decedent’s family ever knowing what happened to their loved one),⁷ some of these bodies are stored at the county morgue for many months or longer.

By the summer of 2006, approximately 130 unidentified UBC bodies were in storage. The PCMEO typically waits at least one year, or until all leads have been exhausted, before generating an “Unknown Release Protocol,” which leads to a decedent being turned over to the Public Fiduciary.

Not all medical examiners along the US/Mexico border allow so much time for identification of a decedent. According to a recent newspaper report, for example, the medical examiner’s office in Yuma County, Arizona, only keeps unidentified bodies for 30 days. If they are not identified by the Mexican Consulate within approximately one-month’s time, they are buried (Sanchez 7/3/06).

The various protocols used by government officials to identify UBC recovered bodies and the period of time in which they are required to do so, as well as the manner in which unidentified remains are interred or disposed of, are subject to debate, especially in terms of the rights of decedents’ families to have a chance to discover the fate of their loved ones and to bury and mourn their dead in culturally appropriate ways. There is clearly a need for thoughtful, informed discussion about exactly what these rights should be.

BMI’s Criteria for Determining a UBC Death

To the best of our knowledge, the BMI study presented herein is the first in-depth analysis of autopsy reports produced by a medical examiner’s office over a long enough period of time (1990-2005) to allow for a scientific assessment of how the nature and character of such deaths have changed following the implementation of new US immigration control policies in the mid-1990s.⁸ (BMI research assistants Daniel

Martinez and Inez Magdalena Duarte conducted the vast majority of data collection and data input for this study.)

For the fiscal years 1990-1999, BMI researchers analyzed *all* of PCMEO's autopsy reports because not even the PCMEO itself had systematically identified all of the UBC bodies they had handled during those years. They had not yet created a database that included a UBC classification (although, notes were made in the autopsy reports for this period of time that indicate if the decedent was a UBC, for instance, if they had been traveling with other UBCs at the time of their death or if the Border Patrol was the reporting agency). BMI also reviewed hard copies of PCMEO's autopsy files, which often include additional supporting evidence not found in the computerized database (e.g., findings and correspondence between various government agencies, Mexican Consulates, and funeral homes).

For the years 2000-2005, BMI only analyzed those cases previously identified by the PCMEO as UBC bodies. Because much of our own criteria are based on the PCMEO's current standards, we have confidence in their prior assessments. Nonetheless, we would like the opportunity and resources to double-check PCMEO's 2000-2005 list of UBC bodies by applying our criteria to *all* of the autopsies that were conducted by the PCMEO during that time (there is a possibility that the PCMEO may have slightly undercounted UBC recovered bodies if, for instance, they categorically excluded those who had a permanent U.S. residence).

The criteria used to classify a case from 1990-1999 as a UBC death was based on an extensive evaluation of previously published standards utilized by government agencies and other academics, as well as the most updated criteria used by the PCMEO.

As discussed below, BMI criterion is more inclusive than the one used by the Border Patrol. BMI used both direct and significant circumstantial evidence to identify UBCs. Each case was reviewed several times and the decedent was only considered an unauthorized border crosser if significant supporting evidence existed.

BMI classified a decedent as a UBC if a convincing combination of some or all of the following criteria had been established by various authorities: lacked a US Social Security number, lacked a permanent US place of residence, Hispanic ethnicity, foreign-born, foreign nationality, foreign residency, foreign next-of-kin, died while in transit from Mexico to a US destination, body located in a well-known migrant corridor or found with or reported by other UBCs, lacked a lawful US immigration status, and possessed personal effects or documents typical of UBCs (e.g., water jugs, US & foreign currency, hygiene products, extra clothing, phone cards, phone numbers or addresses of contacts in a foreign country, & a backpack).

Like the PCMEO's most recent system, BMI also classified skeletal remains or badly decomposed bodies of decedents as UBCs if they were found in well-known, high migrant traffic areas. As pointed out by Pima County's Chief Medical Examiner in 2004, "It doesn't seem there's much reason for people to be out there wandering in the desert unless they're trying to pass through" (Marizco & Ibarra 9/26/04).

BMI's Database & Analysis of UBC Recovered Bodies Processed by the PCMEO

The BMI database of UBC recovered bodies processed by the PCMEO between 1990 and 2005 includes the following categories of information (if a specific variable was incomplete or unavailable for a particular case, it was coded as “missing”):

1. ***PCMEO File Number.*** The PCMEO gives each case a unique 8-digit case number.
2. ***Date Found.*** In a few cases, if the “date found” was not available, BMI entered the earliest date known to the PCMEO. BMI further organized this data by fiscal year (in order to compare our findings with Border Patrol figures which are based on a fiscal year that begins October 1 and ends September 31) and by month (in order to compare our findings with other assessments of the seasonality of such deaths).
3. ***Location Found.*** For many cases, this includes a GPS location, along with additional descriptions of the location. In a few cases, the “location found” or the “injury location” is unknown and the decedent’s location is listed as, for instance, a morgue or hospital.
4. ***Identified/Unidentified.*** This was also treated as a dichotomous variable. Because the PCMEO keeps unidentified decedents for so long in order to improve the chances of identification, a particular case can change from being an unidentified to an identified one over the course of a year. For this reason, BMI’s current count for 2005 might eventually be an overestimate of unidentified UBC bodies.
5. ***Name.*** The PCMEO labels unidentified male decedents and those whose biological sex is undetermined “John Doe” or “John.” Unidentified female decedents are labeled “Jane Doe” or “Jane.” In the PCMEO autopsy reports,

some decedents have both an actual name and “John Doe” or “Jane Doe” label if they were identified sometime after being received by the PCMEO.

6. ***Name & Residence of Next of Kin.***
7. ***Biological sex.*** An individual’s biological sex, if known, was recorded as a dichotomous variable.
8. ***Age.*** Each decedent’s age, if known, was treated as a continuous variable, and BMI also created two additional age-based variables. The variable ***Age Group*** is a categorical variable made up of five ranges: 0-17 years old, 18-29 years old, 30-39 years old, 40-49 years old, & 50+ years old. The variable ***Under 18*** is a dichotomous variable.
9. ***Place of Origin.*** This variable, if known, usually refers to the decedents’ last known place of residence including, if available, city, state, and country.
10. ***Mexican “Sending Region.”*** This variable is based on regional categories created by the Consejo Consultivo de Instituto de los Mexicanos en el Exterior which groups the Mexican states that have been a traditional source of migrants to the U.S. into one “traditional” category and all the other Mexican states by their general geographic location (see ***Map 2. Mexico’s “Sending Regions”***). ***Region 1(Norte, Northern Mexico)***, includes Baja California, Baja California Sur, Sonora, Chihuahua, Nuevo Leon, Tamaulipas, Sinaloa, & Coahuila. ***Region 2 (Tradicional, Traditional Sending Communities)*** includes Durango, San Luis Potosi, Aguascalientes, Jalisco, Zacatecas, Nayarit, Guanajuato, Colima, & Michoacan. The states in this region represent the most traditional places of origin of the majority of Mexicans who migrated to the U.S. in the past. Most Mexican migrants who entered the U.S. during the first *Bracero* program in 1919, for instance, came from San Luis Potosi.. Likewise, it was recently estimated that 48.1% of Mexican-born individuals living in the U.S. are originally from the *Tradicional* Region (Consejo Consultivo de Instituto de los Mexicanos en el Exterior 2004). ***Region 3***

(**Centro, Central Mexico**) includes the most densely populated states of Mexico: Mexico, DF, Queretaro, Tlaxcala, Puebla, Hidalgo, Morelos, & Mexico. **Region 4 (Sur-sureste, South-Southeast Mexico)** includes Guerrero, Veracruz, Campeche, Quintana Roo, Oaxaca, Chiapas, Yucatan, & Tabasco.

11. Cause of Death. Causes of death are grouped into seven possible categories. **Exposure due to the Elements** includes hyperthermia, hypothermia, complications from dehydration, and drowning (only about 1% of all of the cases in this first category were drowning deaths—most of these were caused by border crossers being caught unawares by flash floods). **Undetermined** includes cases for which the cause of death was undetermined (these cases are primarily made up of skeletal remains or bodies in an advanced state of decomposition). **Motor Vehicle Accidents (MVAs)** represents deaths due to motor vehicle accidents, including pedestrians who are hit by on-coming traffic. **Homicide** (the BMI estimate of homicide deaths may be an underestimate because such deaths often warrant a local police or federal investigation, during which time the cause of death of such cases will be classified as “pending”—technically, this “pending” status can remain for up to 30 years). **Natural Causes** represents border crossers who died of natural causes (e.g., heart attack) while in transit from Mexico to the U.S. **Pending** causes of death have not, for various reasons, yet been determined. Finally, there is an **Other** category for causes of death not included in the other categories (in the BMI database, this final category includes 1 person who was fatally struck by lightning and 3 others who apparently committed suicide).

12. Reporting Agency (e.g., the US Border Patrol, local or state policing agencies, etc.).

13. Personal Effects. Any relevant items listed in the PCMEO autopsy database were also entered into the BMI database (e.g., various types of clothing, a wallet and its contents, a purse/bag and its contents, currency, jewelry, glasses, etc.).

14. Brief Description of Circumstances of Death.



Data collected from the PCMEO autopsy reports were analyzed as *cross-sectional, descriptive statistics*. This allowed BMI to statistically describe the various characteristics of the UBC recovered bodies (e.g., whether they were identified or unidentified, biological sex, age-related groupings, place of origin, Mexican “sending region,” if applicable, and the various causes of death). Additionally, a *binary logistic regression analysis* allowed for a statistical examination of the relationships between biological sex, age, and “sending region” (as independent variables) and cause of death (as a dependent variable) during the “funnel effect” years (2000-2005). The PCMEO data was also analyzed as *trend data* in order to assess possible parallels between changes in US immigration control policies (more specifically, the “funnel effect” created by such policies) and changes in the numbers and characteristics of UBC recovered bodies by year (1990-2005). Finally, data was organized into either a “pre-funnel effect” (fiscal years 1990-1999) category or a “funnel effect” (fiscal years 2000-2005) category as an additional test of the “funnel effect.” Then BMI compared the differences between these two categories. *“Pre-funnel effect” & “funnel effect” figures were tested for statistical significance* beyond the 0.05 level (all statistical calculations as well as the tables and graphs for this study were done by BMI research assistant Daniel Martinez).

OVERVIEW OF THE “FUNNEL EFFECT” ON SOUTHERN ARIZONA AND OFFICIAL & UNOFFICIAL RESPONSES TO THE DRAMATIC INCREASE IN KNOWN UBC DEATHS IN THE BORDER PATROL’S TUCSON SECTOR

Some of the Major Consequences of the “Funnel Effect”

The “prevention-through-deterrence” approach to immigration control initiated in the mid-1990s has resulted in the militarization of the border, and a quintupling of immigration control expenditures.⁹ While, by every possible measure, not resulting in an overall decrease in the number of unauthorized migrants crossing into the U.S., increased border barriers, fortified checkpoints, high-tech forms of surveillance, and thousands more Border Patrol agents stationed along the Southwest border have closed off major urban points of unauthorized migration in Texas and California and funneled hundreds-of-thousands of expected, if not “authorized,” economic migrants through Southern Arizona’s remote and notoriously inhospitable deserts and mountains, completely transforming border communities in the process.¹⁰

On any given day in Arizona, approximately 20,000 men, women, and minors who crossed into the state clandestinely and without authorization are detained in an ever-increasing number of privately run jails.

Years of worth of research now makes it perfectly clear that the underlying logic of this ongoing enforcement system is to eventually scare off would-be unauthorized border crossers via seemingly predictable, if not acceptable, levels of injury, suffering, and death to those who dare try (e.g., Cornelius 2001, 2005; Chamblee et al. 2006; GAO 2001, 2006; Nevins 2003, 2006).

The best estimates of where unauthorized migrants have ended up residing throughout the “funnel effect” years, demonstrate the structural change in common points

of entry into the U.S. California, for example, received almost 54% of all unauthorized migrants who came into the U.S. from 1990-2000. From 2000-2005, however, California only received 18% of the national total of unauthorized migrants residing in the U.S. (Paral 2006).

According to the GAO (2006:3-4), three-quarters of the dramatic rise in known UBC deaths from 1995-2005 (which followed the implementation of the 1994 Southwest Border Strategy) is due to the unprecedented increase in such deaths in the Border Patrol's Tucson Sector. The GAO (2006:14) also points out that such known death rates continue to increase despite the fact that official Border Patrol statistics show a decrease in the number of apprehensions of UBCs in the Tucson Sector following a peak in 2000.

As briefly but powerfully described by Evelyn Nieves (Nieves 8/6/2002), “The deaths are full of suffering. People have suffocated in airless trucks, died in vehicle crashes, been struck by lightning or drowned. Most often, though, they are felled by heatstroke or dehydration. Some carry no identification¹¹ and, in a tragic irony, end up where they wanted to be, in the United States—but in anonymous pauper's graves.”

Unauthorized migration into the U.S. is the result of many factors (e.g., modern-day forces of globalization, economic disparities, binational economic arrangements between the U.S. and Mexico such as NAFTA, and the long, complicated historical relationship between these two adjacent nations). Nonetheless, U.S. immigration control policies clearly play a significant role in *shaping* the places *where* unauthorized border crossers attempt to enter the U.S. According to US Border Patrol statistics, for instance, in 1991, prior to the start of prevention-through-deterrence immigration control

operations, only 1 out of every 19 US Border Patrol apprehensions occurred in the Tucson Sector. By 2004, in contrast, 1 out of every 2.36 apprehensions took place here.

There is now no doubt that “Current U.S. border policy has helped send thousands of Mexicans and Central [& South] Americans to their deaths in attempts to cross the Sonoran Desert of southern Arizona (Chamblee et al. 2006:2). This tragedy is, however, also about the presumably even greater number of people who survive (or barely survive), but suffer greatly during their trek toward landscaping U.S. gardens, caring for U.S. children, plucking our chickens, picking our fruit, or doing a variety of other labor-intensive jobs for relatively low wages, no benefits, no job security, and no worker’s rights whatsoever.

As noted by the GAO (2006:9), for instance, “Many migrants suffer severe dehydration and heat exhaustion as a result of attempting to cross the desert where temperatures can exceed 115 degrees in the summer.” They also suffer permanent kidney damage from dehydration, a variety of other serious injuries while covertly walking through unfamiliar, difficult desert and mountain terrain, severe injuries sustained in motor vehicle accidents, hunger, and, sometimes, physical and sexual abuse and other forms of violence. Southern Arizona hospitals, medical centers, and EMT units routinely provide medical care to such people.

A volunteer with the humanitarian-aid group *No More Deaths* in the summer of 2005, Kate Lynch’s notes (Lynch 2005) about the suffering she witnessed first-hand in the Arizona desert deserve to be repeated here:

“The migrant sat hunched over on the side of the road, unable to lift his head or even his hand to take a sip of water. He had been wandering the Arizona desert alone for days searching for help. His eyes, bloodshot and hazy, stared through a misty glaze towards the ground. He was no more than 5 feet tall and weighed around 100 pounds. He wore a red baseball cap and carried a heavy pack filled with clothes and family memorabilia. The group with whom he had begun this disastrous journey had now abandoned him because he was too slow. The \$1,500 he paid for a smuggler was now lost. He hadn’t eaten in three days and his water bottle had been empty for hours. He was conserving his last drops for a day and a half. He mumbled as he spoke of his failure to make it, of his young daughters who will go hungry, and of the dying man he was unable to help. He wanted to go home.

The migrants’ situation is desperate. Many of the migrants had been abandoned by larger groups, or had become disoriented and lost their direction only to walk aimlessly for days. All were dehydrated, out of water and without food. Some had feet covered in blisters that were so painful, they were no longer able to walk. Some were aware of the distance required to reach their destination, but others believed that New York was a day’s walk and that Los Angeles was but an hour west.

A man named José limped down a trail toward Arivaca fighting the urge to turn back around and start the 20-mile hike back towards Mexico. The terrain was rugged and rocky and the record heat merciless. The blood from his feet saturated his socks and shoes and with each step surely brought excruciating pain shooting from his blisters. One of our trucks spotted him and brought him back to the camp for medical attention. Inside his wallet was a picture of his two young daughters dressed in white, no doubt on the day of their first communion. He told us that is what kept him going.”

Official Responses to the Negative Consequences of the “Funnel Effect”

It is still true today that “Washington refuses to acknowledge any responsibility for the growing death toll. Instead, it blames professional smugglers, or *coyotes*, for leading people into high-risk areas and then abandoning them ... even though the significant growth in use of *coyotes* has been the predictable, direct result of the enhanced border-enforcement strategy” (Nevins 2003: 7). Despite this ongoing state of denial, however, the government has undertaken various, highly publicized measures since the late 1990s intended to reduce injuries among and deaths of unauthorized border crossers, particularly those crossing into southern Arizona. Though, as detailed below, the recent GAO (2006) assessment of all of these efforts plainly states that there is no evidence whatsoever that they have been effective, and, of course, UBC known death rates remain high.

The Border Safety Initiative (BSI), initiated in June 1998, aimed at reducing the suffering and deaths amongst UBCs by, for instance, installing rescue beacons in especially dangerous areas that can be activated to alert the Border Patrol that people need help. There have definitely been cases of people in distress being rescued by activating these beacons. According to the GAO (2006:29), however, because the Border Patrol does not maintain detailed data on BSI operations, the extent to which they can claim that BSI efforts make a difference is limited (GAO 2006:29).

In the late 1990s, the Border Patrol Search, Trauma, & Rescue (BORSTAR) was set up (first in the San Diego Sector and then in the Tucson and Yuma Sectors). BORSTAR agents receive specialized training to carry out emergency search and rescue operations. As of October 2005, there were 164 BORSTAR agents deployed in the

Border Patrol's 9 sectors along the southwest border, mostly in high-threat areas.

According to the Border Patrol, BORSTAR has conducted hundreds of rescues.

A Rutgers University's assessment of the effectiveness of BORSTAR concluded that the probability of a death is 88% less if a BORSTAR agent, as opposed to a regular Border Patrol agent, responds to a distress call (Clarke & Guerette 2004). But, once again, the GAO (2006) concluded that the results of the Rutgers' study are problematic, primarily because their findings were not evaluated within the context of other BSI efforts (e.g., rescue beacons and a media campaign to discourage UBCs).

In 2003 and 2004, the Border Patrol initiated a Lateral Repatriation Program (LRP) and an Interior Repatriation Program (IRP) in the smuggling corridors of southern Arizona. The goal of these programs (both of which are currently inactive) was to deter apprehended UBCs from attempting multiple re-entries into the U.S. via Arizona's perilous deserts by deporting them to Mexico via ports of entry in Texas or by transporting them to their hometowns in Mexico's interior. The IRP only transported apprehended individuals who volunteered for the program.

At one point, the Border Patrol claimed that these measures contributed to a reduction in heat-related deaths between 2003 and 2004. However, the Border Patrol's own BSI data, as reported by the GAO (2006), shows an ultimate increase in all known UBC deaths in Pima County during that time. "Further, in the second year of the IRP, the number of deaths increased. If changes in the number of deaths were again used as the only indication of the program's effectiveness, the implication could be that the IRP caused a corresponding increase in deaths between 2004 and 2005" (GAO 2006:30).

While not primarily a safety initiative, as a part of the Arizona Border Control Initiative (ABCI) started in March 2004, the Border Patrol launched an extensive media campaign warning potential migrants about the dangers of trying to cross into the U.S. through the desert. Still, according to the GAO (2006:5), “There is insufficient evidence to support the Border Patrol’s assertions that related efforts such as the ABCI and the IRP reduced migrant deaths between 2003 and 2004.”

As explained by the GAO (2006), a simple measurement in the change of death figures following the introduction of prevention efforts is an insufficient method for determining the effectiveness of such efforts due to other factors that may also have an effect on deaths (e.g., changes in the numbers of unauthorized migrants attempting to cross the border, variations in crossing locations, fluctuations in weather patterns, and changes in enforcement activities).

In late September 2006, the Border Patrol claimed about a 20% decrease in deaths in the Tucson Sector in the 2006 fiscal year (*Arizona Daily Star*, 9/29/06). According to the Border Patrol, total deaths decreased from 216 in 2005 to 161 in 2006. However, the accuracy of the most recent Border Patrol figures has yet to be determined. And, the agency’s claims that such death figures are in and of themselves evidence of successful Border Patrol initiatives to reduce known UBC deaths in southern Arizona indicates that they have not yet taken to heart the GAO’s call for improved methods of data collection or statistical analysis that incorporates multiple variables related to rates of recovered bodies. Other experts claim, for instance, that the apparent drop in known deaths, if accurate, is just as likely due to an unusually rainy summer in southern Arizona in 2006

as to the over 1,000 National Guard troops now posted along the border and other ongoing BSI efforts.

Finally, the Border Patrol is still not presenting such figures within the context of what is, after all, a pliable “funnel effect.” When such known deaths appear to go down in the Tucson Sector, for instance, do they go up somewhere else? It is essential to look at such numbers in the context of the numbers of recovered bodies in adjacent, equally inhospitable sectors over the same period of time.

Unofficial Responses to the Negative Consequences of the “Funnel Effect”

Since the late 1990s, many migrant advocacy organizations as well as secular and religious-based humanitarian aid groups have done their utmost to prevent unauthorized border crossers from perishing in southern Arizona. Their efforts include educational campaigns, lobbying on the behalf of migrants, and, when possible, direct aid to those in medical distress. Among comprehensive changes to US immigration policies and border enforcement, they espouse Christian kinship, universal human rights, and cross-border humanity.

In the late 1990s, for instance, a group of concerned Tucsonans (including church-based and secular organizations) came together to basically work out the types of action needed to help prevent death. In general, *No More Deaths*, *Good Samaritans*, and *Humane Borders* emerged out of this gathering of humanitarians.

No More Deaths relies on volunteers from around the country to bring direct aid to migrants in distress (in 2005 they had 300 volunteers from 25 different states and they have camps in high migrant-traffic areas in Arivaca, Arizona; Cochise County, Arizona; and Agua Preita, Sonora). They walk desert patrols in search of migrants in need of food,

water or medical attention. They report encountering 750 migrants at the Arivaca camp in 2005.

In 2005, two volunteers were arrested for transporting migrants in severe medical condition to a nearby hospital. Despite an effort to criminalize such humanitarian action, the charges were eventually dropped in 2006 (at the same time, the Border Patrol took 150 agents from San Diego and Texas to help guard the area *No More Deaths* is working in).

In 2000, *Humane Borders* started providing water to dehydrated migrants in the Arizona desert, as well as educating the general public, migrants, and policymakers on both sides of the US/Mexico border about the scale of the human tragedy taking place in their own backyard. Today, *Humane Borders* has more than 2,000 volunteers and maintains more than 80 water stations in southern Arizona and Northern Mexico. Since March 2001, they have distributed more than 64,000 gallons of water to those in need.

In 2002, for educational purposes, *Humane Borders* also began producing maps of locations of known UBC deaths in Arizona. In cooperation with the Mexican government, they had also planned on distributing 70,000 warning posters/maps in Mexican and Central American communities with high rates of migration to the U.S. to help inform them about the dangers of clandestinely crossing into the U.S. via the southwestern deserts. The map to be distributed is clearly designed to save lives, and its scale is not sufficient enough to be used as a navigational tool. In early 2006, however, following reactionary misrepresentations in the media, this plan was denounced by the U.S. government as a measure that might instead aid unauthorized entry into the U.S., and the Mexican government subsequently pulled out. Still, some of these maps are being

distributed via the *Humane Borders* website and faith-based groups in Mexico and Central America (Chamblee et al. 2006).

While the U.S. Congress continues to debate immigration policy reform, community-based humanitarian groups aid migrants in need in southern Arizona by providing food, water, first-aid supplies, and medical assistance. Such groups also hold memorial services for the dead and help locate relatives (there are also similar efforts in other parts of the U.S. southwest, for instance, an El Paso group *Paisanos al Rescate*, “Countrymen to the Rescue,” tries to limit deaths there by monitoring that border area in small planes and dropping bottles of water by parachute to migrants on the desert floor) .

Various concerned scientists and medical professionals are also attempting to devise more efficient ways of identifying the recovered UBC bodies that medical examiners, such as the PCMEO, are struggling to identify. Samuel Keim, of the University of Arizona’s Department of Emergency Medicine, for example, has recently proposed the *Arizona-Mexico Border Death & Kinship Analysis Program*. In cooperation with numerous U.S., Mexican, and international agencies, this program aims, among other things, to construct a secure and efficient database for DNA profiles and matching.

BMI MAJOR FINDINGS FROM PCMEO AUTOPSY REPORTS OF UBC RECOVERED BODIES, 1990-2005

BMI findings are drawn from various descriptive and trend data illustrated throughout this section as well as the *Regression Results for Known UBC Deaths from 2000-2005 (Table 1.)* and the “*Pre-Funnel Effect/Funnel Effect*” Years *(Table 2.)* that follow. The results from each of these tables will be discussed throughout this section.

Table 1. BMI Regression Results

Statistically Significant Binary Logistic Regression Results (aggregated data, 2000-2005, N= 804)

	Model I (Exposure)			Model II (Homicide)			Model III (MVA)		
	Beta	OR	(95% CI OR)	Beta	OR	(95% CI OR)	Beta	OR	(95% CI OR)
Constant	1.267	3.55	-	-2.81	0.06	-	-1.85	0.16	-
Under 18	-1.311***	0.27	(0.14-0.53)	-	-	-	1.24***	3.46	(1.7-7.03)
Female	1.055***	2.87	(1.61-5.13)	-2.19*	0.11	(0.02-0.83)	-	-	-
Norte	-1.384***	0.25	(0.14-0.46)	2.67***	14.42	(4.70-44.30)	-	-	-
Tradicional	-	-	-	-	-	-	-	-	-
Centro	1.26***	3.40	(1.72-6.74)	-	-	-	-1.00**	0.37	(0.17-0.78)
Sur-sureste	-	-	-	-	-	-	-	-	-
Non-Mexican	-1.01**	0.37	(0.19-0.73)	-	-	-	1.37***	3.9	(1.92-7.94)

* = p < 0.05

** = p < 0.01

*** = p < 0.001

TABLE 2. DIFFERENCES IN “PRE-FUNNEL EFFECT” & “FUNNEL EFFECT” RECOVERED BODIES OF UNAUTHORIZED BORDER CROSSERS HANDLED BY THE PIMA COUNTY MEDICAL EXAMINER’S OFFICE

	PRE-FUNNEL EFFECT (1990-1999)	FUNNEL EFFECT (2000-2005)
Total Number of Recovered Bodies**	125	802
Females	13.6%	22.6% *
Males	84.0%	77.2%
Unidentified	37.6%	24.9%
Mean Age	30 years old	30 years old
Deaths due to Exposure to the Elements	39.2%	61.4% *
Undetermined Cause of Death	31.2%	19.6%
Deaths due to Motor Vehicle Accidents	18.4%	11.1% *
Deaths due to Homicide	5.6%	3.2%

The “pre-funnel effect” figures above include **all recovered bodies from fiscal year 1990 – fiscal year 1999 (125). The “funnel effect” figures include **all** recovered bodies from fiscal year 2000 – fiscal year 2005 (802). An asterisk indicates that the change in a particular category was found to be statistically significant beyond the 0.05 level.

	PRE-FUNNEL EFFECT (1990-1999)	FUNNEL EFFECT (2000-2005)
Total Number of Recovered Bodies for which the “Sending Community” Is Known**	60	445
Recovered Bodies from Mexico’s Norte region	51.7%	13.7% *
Recovered Bodies from Mexico’s Tradicional Sending Communities	21.7%	21.6%
Recovered Bodies from Mexico’s Centro region	6.7%	29.2% *
Recovered Bodies from Mexico’s Sur region	11.7%	24.0% *

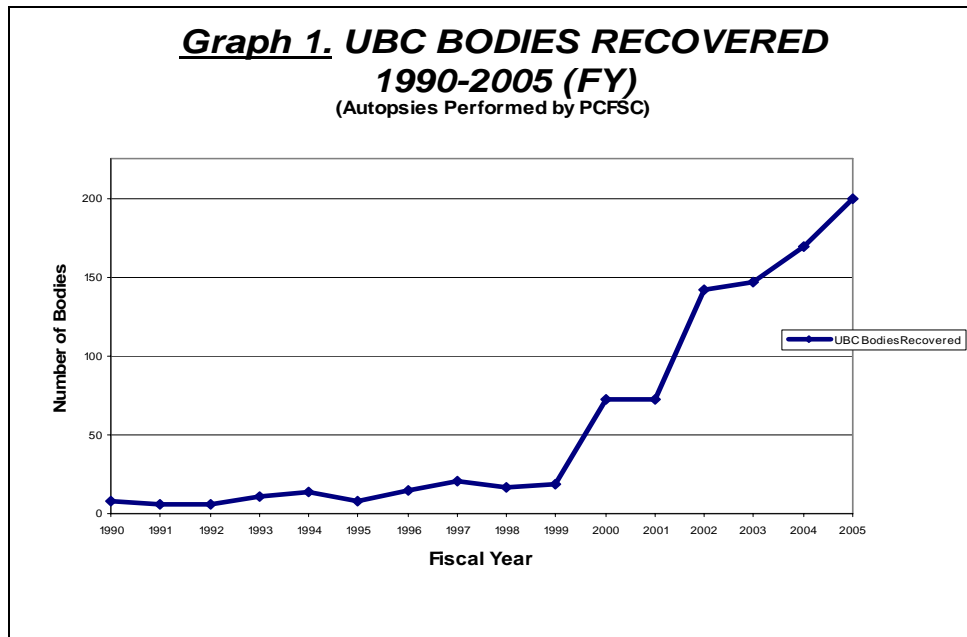
The “pre-funnel effect” figures above include **only those UBC recovered bodies for which the “sending region” is known from fiscal year 1990 – fiscal year 1999 (60). The “funnel effect” figures include only those UBC recovered bodies for which the “sending region” is known from fiscal year 2000 – fiscal year 2005 (445). Unlike *Table 5. Distribution of UBC Bodies Recovered by Sending Community (1990-2005)* presented below, the table above **excludes** all UBC cases for which the specific sending community is unknown (422). An asterisk indicates that the change in a particular category was found to be statistically significant beyond the 0.05 level.

UBC Recovered Bodies

From 1990-2005, the Pima County Medical Examiner's Office (PCMEO) handled a total of 927 unauthorized border crosser (UBC) bodies from throughout southern Arizona--see ***Graph 1***. The vast majority (70.9%) of these migrants perished during Arizona's almost constant "heat wave" temperatures between May and September. In the "pre-funnel effect" years (1990-1999), the PCMEO processed 125 bodies. In the "funnel effect" years (2000-2005), PCMEO staff handled a staggering 802 bodies. In other words, before the "funnel effect," the PCMEO dealt with, on average, approximately 14 UBC recovered bodies per year. After the "funnel effect," they have had to cope with a workload of approximately 160 UBC recovered bodies per year. On average, therefore, the PCMEO is now handling 10 times the number of UBC cases than they did fifteen years ago.

As noted earlier, it is conservatively estimated that the PCMEO has handled more than 90% of all the known UBC deaths in the Tucson Sector for the past 15 years.

In 1990, there were 9 UBC recovered bodies brought to the PCMEO. In 2005, the year with the greatest number of such bodies over the 15-year span analyzed by BMI, the PCMEO handled **20-times** that number or 201 bodies. From this perspective, that is, using BMI's analysis of PCMEO's figures as a more precise reflection of what has transpired in the Tucson Sector, this **20-fold increase** of known UBC deaths in the Tucson Sector is even more dramatic than the one suggested by the GAO's 2006 report on known migrant deaths (i.e., that 3/4s of the doubling of all known UBC deaths across the entire US/Mexico border between 1995 and 2005 occurred in the Tucson Sector).



Identified and Unidentified UBC Recovered Bodies

Over the entire period of time from 1990-2005, the PCMEO was able to identify at least 677 (73%) of the decedents before initiating an “Unknown Release Protocol.” All of the decedents who have been identified by the PCMEO are listed in ***Appendix A.***

Deceased Unauthorized Border Crossers Processed & Identified by the Pima County

Medical Examiner’s Office, 1990-2005. It is worth noting that, despite the drastic increase in the caseload of the PCMEO, the percentage of unidentified decedents actually decreased from 37.6% in the “pre-funnel effect” years (1990-1999) to 24.9% in the “funnel effect” years (2000-2005).

UBC Recovered Bodies by Biological Sex

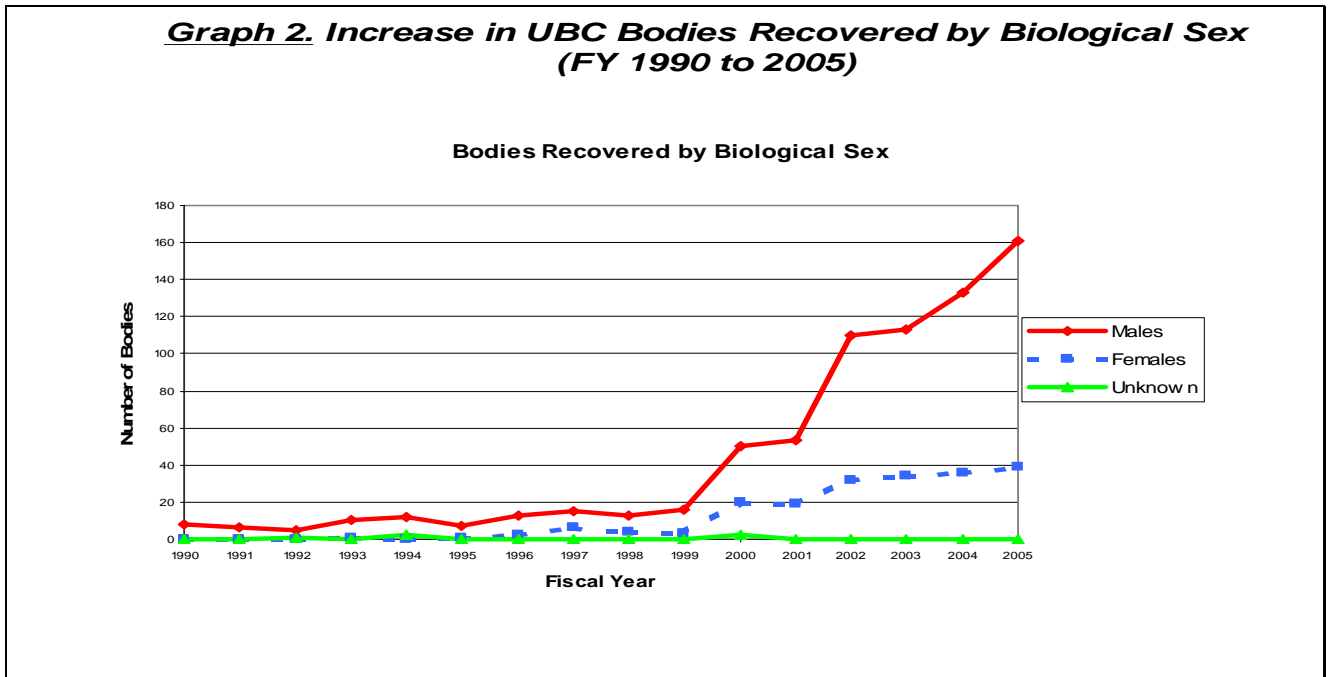
725 (78.2%) of all of the 927 decedents from 1990-2005 were male, 197 (21.3%) were female (the biological sex of 5 or 0.5% of the decedents was undetermined).

Graph 2. Bodies Recovered by Sex, clearly shows that the number of both male and

female decedents has increased over time, but the “pre-funnel effect/funnel effect” results

also show that the change in the number of female bodies before (13.6% of all deaths) and during the funnel effect (22.6% of all deaths) is statistically significant beyond the 0.05 level. This trend of more female deaths during the funnel effect closely matches the GAO's (2006: 4, 14) findings for the entire southwestern border (i.e., that the percentage of known female deaths rose from 12% in 1998 to 26% in 2003). Furthermore, BMI regression results (for the fiscal years 2000-2005) show that, when controlling for age, women are 2.87 times more likely to die of exposure to the elements than men.

According to the GAO (2006:24-25), from 1995-2005, "The increase in the deaths among females in the Tucson Sector accounted for 96 percent of the total increase in deaths among females across all sectors."



UBC Recovered Bodies by Age

Table 3. below shows the distribution of UBC bodies recovered by age from 1990-2005 (note that 27.9% or 259) were unknown. Of the decedents whose ages were known (668), the vast majority (539 or 81%) was under the age of 40 years old. The largest number of deaths by age group is the 317 individuals between the ages of 18 years-old and 29 years-old, that is, 47% of all those whose ages were known (668). The mean age at the time of death for both the “pre-funnel effect” and “funnel effect” years was 30 years old (the GAO’s 2006 report also shows no significant changes in the known ages of migrant bodies over the past ten years).

These figures, however, underscore a critical reality about the unauthorized border crossers who are dying in our country, that is, they are young. These are not people weakened by old age, even middle age. Age-wise, at least, they are in the prime years of their lives. In fact, in our sample of such known deaths, there were more youths under the age of 18 years old (47) than middle-aged people over 50 years old (36).

Furthermore, even though the number of those under of the age of 18 years old (47) is still a relatively small percentage (7%) of the total number of decedents with known ages (668), there is, overall, an obvious upward trend amongst such known deaths from 1990-2005. Fifteen years ago, in 1990, for instance, there were no UBC recovered bodies of anyone under the age of 18 years old. In 2005, however, there were 11 such cases. In any given year during the “pre-funnel effect” period (1990-1999), there were never more than more than 5 UBC recovered bodies under the age of 18 years old. Additionally, BMI regression analysis reveals that for all cases from 2000-2005, when controlling for biological sex, individuals under the age of 18 years-old are 3.4 times

more likely to die in motor vehicle accidents than adults. At the same time, regression analysis also suggests that, when controlling for biological sex, this same age group is only 27% as likely to die of exposure to the elements as adults.

Table 3. Distribution of UBC Bodies Recovered by Age Group (FY 1990-2005)

Age Group	Number of Cases	Percent of Total
0-17	47	5.1
18-29	317	34.2
30-39	175	18.9
40-49	93	10.0
50+	36	3.9
Unknown Age	259	27.9
Total	927	100.0

UBC Recovered Bodies by Cause of Death

The results for the major categories of cause of death are provided below in **Table**

4.

Of all of the UBC bodies handled by the PCMEO from 1990-2005 (927), the cause of death was undetermined for 197 cases or 21.2% of the total. It is important to note, however, that in the “pre-funnel effect” years (1990-1999), the cause of death was undetermined in 31.2% of all cases, whereas in the “funnel effect” years, this figure decreased to 19.6%. Once again, these results point to the high-level of skill and determination of the PCMEO staff to discover all they can about a particular decedent.

In contrast, the GAO’s analysis of BSITS figures on undetermined cause of death for all the UBC recovered bodies across the entire southwestern border counted by the

Border Patrol shows that the overall number of unknown causes of death increased from 11% in 1998 to 36% in 2005 (GAO 2006:20). Perhaps the differences in the figures for the PCMEO and the entire BSI “target zone” are due, in part, to methodological problems in the BSITS database, perhaps they are an indication of the PCMEO’s proficiency?

Table 4. Frequencies of Cause of Death of UBC Bodies Recovered, 1990-2005 (FY)

Cause of Death	No. of Cases	Percent of Total
Exposure (Hyperthermia, Hypothermia, Drowning)	553	59.7
Undetermined (Due to Skeletal Remains or Advanced Decomposition)	197	21.2
Motor Vehicle Accidents (Including Pedestrians)	112	12
Homicide	33	3.6
Natural Causes	18	1.9
Pending Investigation	10	1.1
Other	4	0.4
Total	927	100.0

Exposure to the Elements

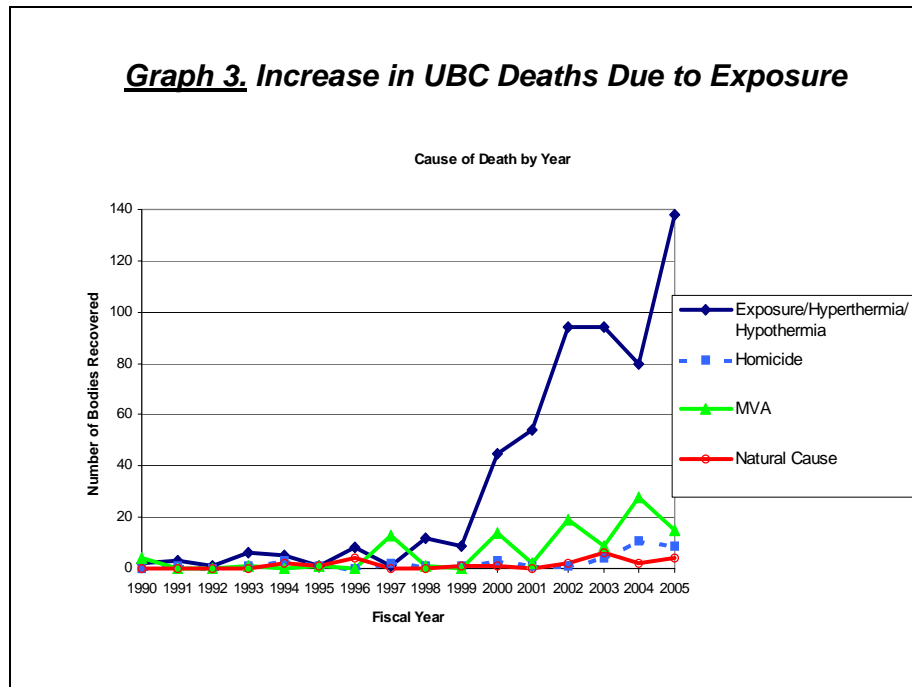
Unlike most other southwestern Border Patrol sectors, even before the U.S. government devised a strategy to funnel migrants through the Arizona desert, exposure to the elements (of course, primarily heat-exposure) was the leading cause of death in the Tucson Sector. Even in the “pre-funnel effect” years (1990-1999), 39.2% of UBC deaths handled by the PCMEO were due to exposure to the elements (whereas, 18.4% were due

to motor vehicle accidents, the second leading cause of death in the Tucson Sector then and now).

In contrast, during the early 1990s, motor vehicle accidents, not exposure, were the leading cause of death across the entire US/Mexico border (GAO 2006:4). It would certainly be interesting to know how those who devised the *1994 Southwest Border Strategy* interpreted this historical fact before implementing their plan.

Because UBCs were, nonetheless, redirected through the Tucson and Yuma Sectors, as noted by the GAO (2006:14), the number of border-crossing deaths due to heat exposure steadily increased beginning in 1998. Across the entire US/Mexico border, they increased from about 4% of all deaths in 1990 to more than 30% in 2001 (GAO 2006:18).

At the PCMEO, there has also been a statistically significant increase in UBC deaths due to exposure (this BMI category includes hyperthermia, hypothermia, and drowning, but an overwhelmingly number of cases are due to hyperthermia—only 12 cases involved drowning). It rose from 39.2% in the “pre-funnel effect” years (1990-1999) (39.2%) to 61.4% in the “funnel effect” years. This extreme increase in cause of death by exposure is presented as trend data below.



BMI’s regression analysis also reveals that different types of people appear to be more likely to fall prey to the desert’s deadly, natural forces. When controlling for age, as mentioned earlier, for instance, women are 2.87 times more likely to die of exposure than men. Individuals under the age of 18 years old are, on the other hand, only 27% as likely to die of exposure as adults. Likewise, when controlling for age and biological sex, individuals from Mexico’s *Norte* region are less likely to die of exposure than individuals from Mexico’s other regions (that is, they too are only 27% as likely to die of exposure as others), whereas, individuals from Mexico’s *Centro* region are 3.4 times more likely to die of exposure than individuals from other regions of Mexico.

It appears, however, that the distance of a UBC’s sending community from the U.S. might not, in and of itself, solely determine an individual’s likelihood of dying due to exposure to the elements. According to BMI’s regression analysis of all of the PCMEO recovered bodies from 2000-2005 with known causes of death, for instance,

when controlling for age and biological sex, individuals not from Mexico, referred to by the Border Patrol as “OTMs” (Other Than Mexicans”), are less likely (i.e., only 37% as likely) to die from exposure as all of those from Mexico.

At the same time, the finding that people from countries south of Mexico are less likely to die of exposure than Mexicans might not have a high degree of reliability because the cause of death was unknown for almost half (45.5%) of all the UBC recovered bodies handled by the PCMEO, and individuals known not to be from Mexico make up only 6% (56) of the total number of all UBC cases.

Motor Vehicle Accidents

The second most common cause of death among the UBC bodies processed by the PCMEO between 1990 and 2005 is motor vehicle accidents, including pedestrians struck by vehicles (though, this number is more than 4-1/2 times smaller than the leading cause of death, that is, exposure). 112 individuals or 12.1% died this way. Similar to what has taken place along the entire Southwestern border since the “funnel effect” took hold (GAO 2006:4), in the Tucson Sector, motor vehicle deaths declined as exposure deaths increased. During the “pre-funnel effect” years (1990-1999), death due to motor vehicle accidents was 18.4% of all known causes of death, whereas during the “funnel effect” years (2000-2005), such deaths decreased to 11.1%.

The BMI regression analysis of all UBC bodies from 2000-2005 also reveals distinctions between different types of UBCs and their likelihood of dying due to a motor vehicle accident. As noted earlier, when controlling for biological sex, those under the age of 18 are 3.4 time more likely to die in a motor vehicle accident than adults. Similarly, when controlling for age and biological sex, non-Mexican UBCs are 3.9 times

more likely to die in such an accident than those from Mexico. On the other hand, people from Mexico's *Centro* region are less likely (only 35% as likely) to die in a motor vehicle accident as people from Mexico's other regions.

Homicide

The GAO's 2006 analysis of NCHS data reveal that across the entire US/Mexico border, deaths due to homicide decreased from 24% in 1990 to 9% in 2003. BMI's analysis of PCMEO UBC autopsy reports also shows a decrease in the rate of homicide cases (i.e., from 5.6% in the "pre-funnel effect" years to 3.2% in the "funnel effect" years). Though, unlike other Border Patrol sectors, the rate of homicide deaths of UBCs in the Tucson Sector has never been as high as it has been in other parts of the border.

Having said that, BMI regression analysis of UBC deaths from 2000-2005, reveals that, when controlling for age, women are far less likely to die of homicide than men. More specifically, they are only 11% as likely to be murdered as men. On the other hand, when controlling for age and biological sex, unauthorized migrants from Mexico's Norte region are 14.42 times more likely to die of homicide than people from all of Mexico's other regions.

UBC Recovered Bodies by "Sending Community"

Unlike Table 2. above, Table 5. below presents UBC bodies recovered by the PCMEO (1990-2005) according to the known Mexican "sending regions" (following the categories established earlier in this report) within the context of *all* individuals known to be from a Central or South American country other than Mexico (56), as well as the large number of UBC cases for which the specific "sending community" is unknown by BMI (i.e., 422).

The primary reason why the BMI review of PCMEO autopsy reports includes so many unknown Mexican “sending communities” is that the autopsy reports often simply state “Mexico” as the place of origin and do not list the specific Mexican state in which the decedent resided, or the name of a small town or *ejido* is listed but without a designated state. Given the material at hand, BMI researchers did not, therefore, have the means to establish Mexican “sending communities” for such cases.

This is one obvious way in which the PCMEO could, perhaps, make information in the autopsy database and hardcopy reports more precise.

The simple way of presenting the figures for individuals from Mexico’s various regions in **Table 5** indicates that Mexico’s *Norte, Tradicional, Centro, and Sur-Sureste* regions are fairly evenly represented amongst the dead for whom a specific region is known over the entire 15-year span for which data was collected. When one looks at these same figures independently of the number of UBCs for which the region of origin is unknown (422) and when they have been classified as occurring in either the “pre-funnel effect” or “funnel effect” years (see **Table 2**. above), however, things look quite different.

Table 5. Distribution of UBC Bodies Recovered by Region of “Sending Community” (FY 1990 to 2005)

Geographical Region of “Sending Community”	Number of Cases	Percent of Total
North (<i>Norte</i>)	92	9.9
Traditional (<i>Tradicional</i>)	109	11.8
Central (<i>Centro</i>)	134	14.5
South-Southeast (<i>Sur-Sureste</i>)	114	12.3
Individuals not from Mexico	56	6.0
Unknown Region of Origin	422	45.5
Total	927	100.0

The findings given in *Table 2*, earlier in this section of the report, unlike those in *Table 5*, are based only on known Mexican “sending region” cases and known non-Mexican cases from 1990-1999 (60 total cases) and from 2000-2005 (445 total cases). Unlike the figures presented above, they suggest significant changes in the Mexican region of origin of unauthorized migrants who died in the Arizona desert before the “funnel effect” and during the “funnel effect.” Excluding the large number of cases for which a specific “sending region” is unknown (422) throughout the entire 15-year period for which data was collected, changes in the known Mexican “sending communities” of UBC recovered bodies before and during the “funnel effect” are statistically significant for Mexico’s *Norte*, *Centro*, and *Sur-Sureste* regions.

More specifically, prior to the “funnel effect” years, the vast majority (51.7%) of such cases were from northern Mexico or, to a lesser degree, from the *Tradicional* region (21.7%). At that time, of all the UBC bodies for which a specific region of origin is known, people from Mexico’s *Centro* (6.7%) and *Sur-Sureste* (11.7%) regions were very much in the minority of such cases.

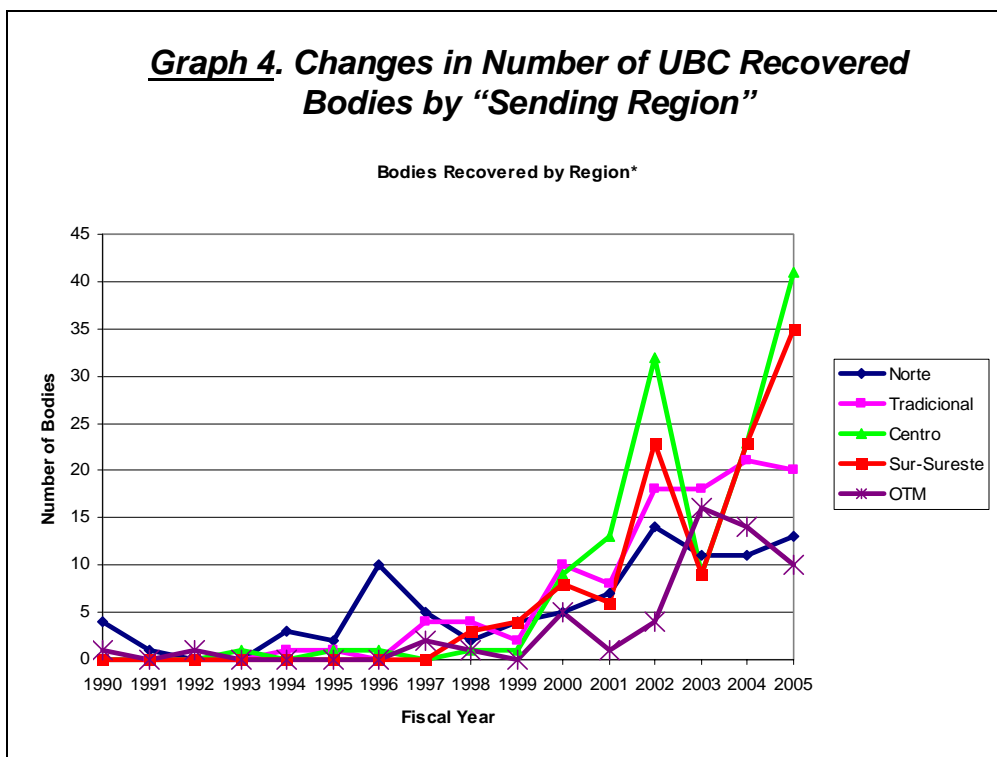
During the “funnel effect” years, however, more than 50% of such deaths were from either the *Centro* or *Sur-Sureste* regions.

In other words, there was a statistically significant increase in the percentage of such cases from the *Centro* (29.2%) and *Sur-Sureste* (24.0%) regions, along with a statistically significant decrease in such cases from Mexico’s *Norte* region (13.7%).

The percentage of people from the *Tradicional* region remained virtually the same before and during the “funnel effect” (i.e., it changed from 21.7% to 21.6%).

Despite year-to-year fluctuations, this trend of increasing cases from Mexico’s *Centro* and *Sur-Sureste* regions and decreasing cases from the *Norte* region during the “funnel effect” is easy to see in the trend data presented in ***Graph 4*** below. (Even though the actual number of such cases from countries other than Mexico increased from 5 before the “funnel effect” to 51 during the “funnel effect,” the change in the percentage of such cases from one period of time to the other, i.e., from 8.3% to 11.5%, was not statistically significant.)

Graph 4. Changes in Number of UBC Recovered Bodies by “Sending Region”



In terms of all the PCMEO cases for which the “sending region” is known, BMI data indicates an ongoing trend since the “funnel effect” in which fewer and fewer unauthorized migrants from northern Mexico are dying in the Sonora/Arizona migration corridor, while more and more people from Mexico’s central and southern regions are perishing in the desert. Because the number of unknown “sending region” cases from the PCMEO autopsy reports is very high (almost ½ of all cases), it is essential for the reader to bear in mind that these figures might not be fully reliable.

Still, the trend identified by BMI fits with the findings of a recent report on migrant deaths from 1993-2003 prepared by Mexico’s National Population Council (CONAPO) which concludes that unauthorized migrants from Mexico’s southern states are more at risk of death and injury in the southern Arizona desert than those from northern Mexico.

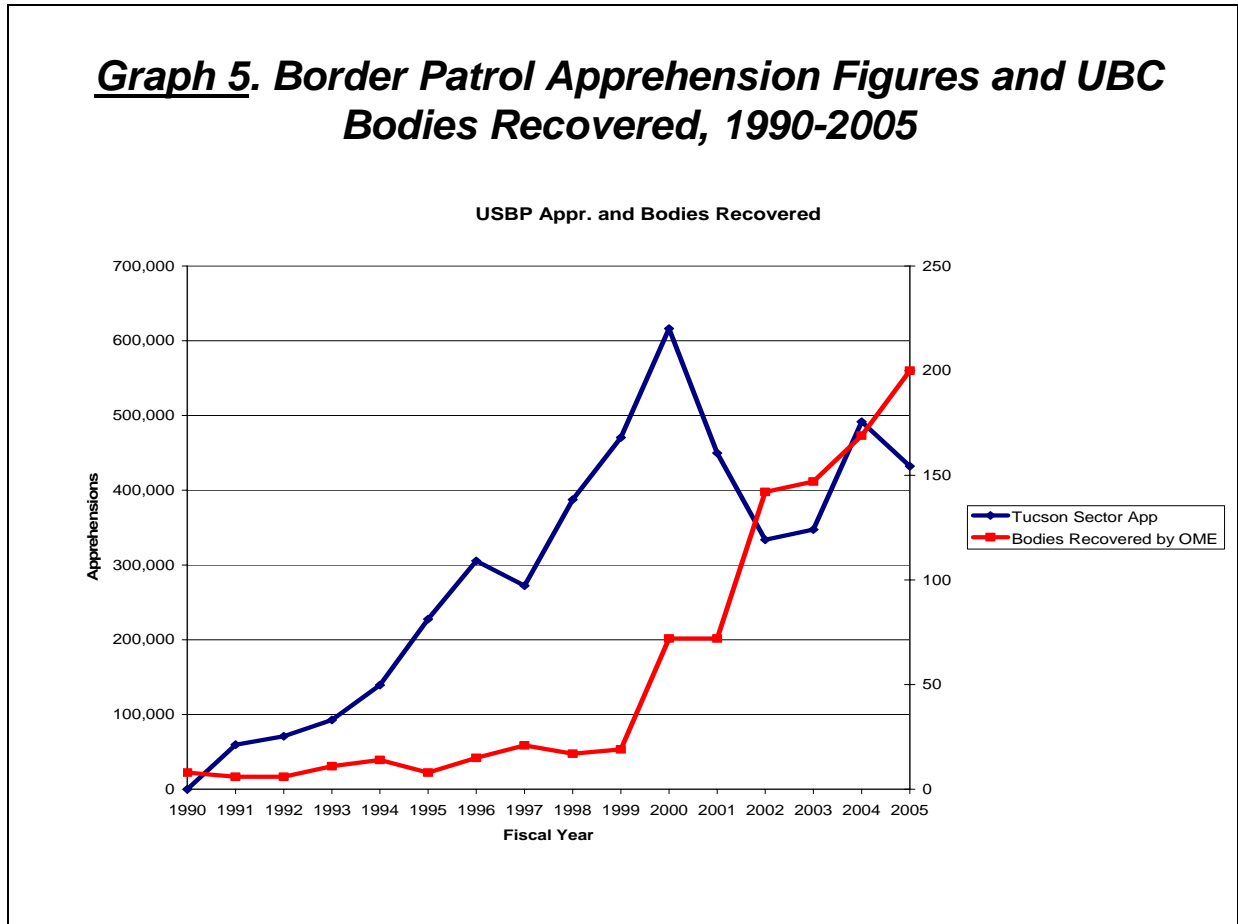
In brief, the authors of the CONAPO report suggest that southerners are more vulnerable than northerners to the border's death traps because they lack experience in making unauthorized crossings. According to CONAPO, for instance, only 17% of UBCs from Mexico's southern regions have had a previous migration experience, whereas 42% of those who come from traditional migrant-sending states like Jalisco or Zacatecas have had a previous migration experience.

CONAPO estimates that from 1993-2003, approximately 62% of Mexican UBCs were from Mexico's southern and central regions. Similarly, BMI's analysis of all UBC bodies handled by the PCMEO (from 1990-2005) with a known "sending region" indicates that during the "funnel effect" years (2000-2005), over 50% of such individuals were from the central and southern regions of Mexico (see *Table 2*. above).

While many economic factors, for example, Mexico's ongoing economic crisis (especially the extreme poverty found in the south) and the development gap between the U.S. and Mexico, among other factors, affect the shape of Mexican migration into the U.S. (e.g., Roberts & Hamilton 2005), it is clear that U.S. immigration control policies along the border greatly influence the border areas through which UBCs attempt to enter the U.S.

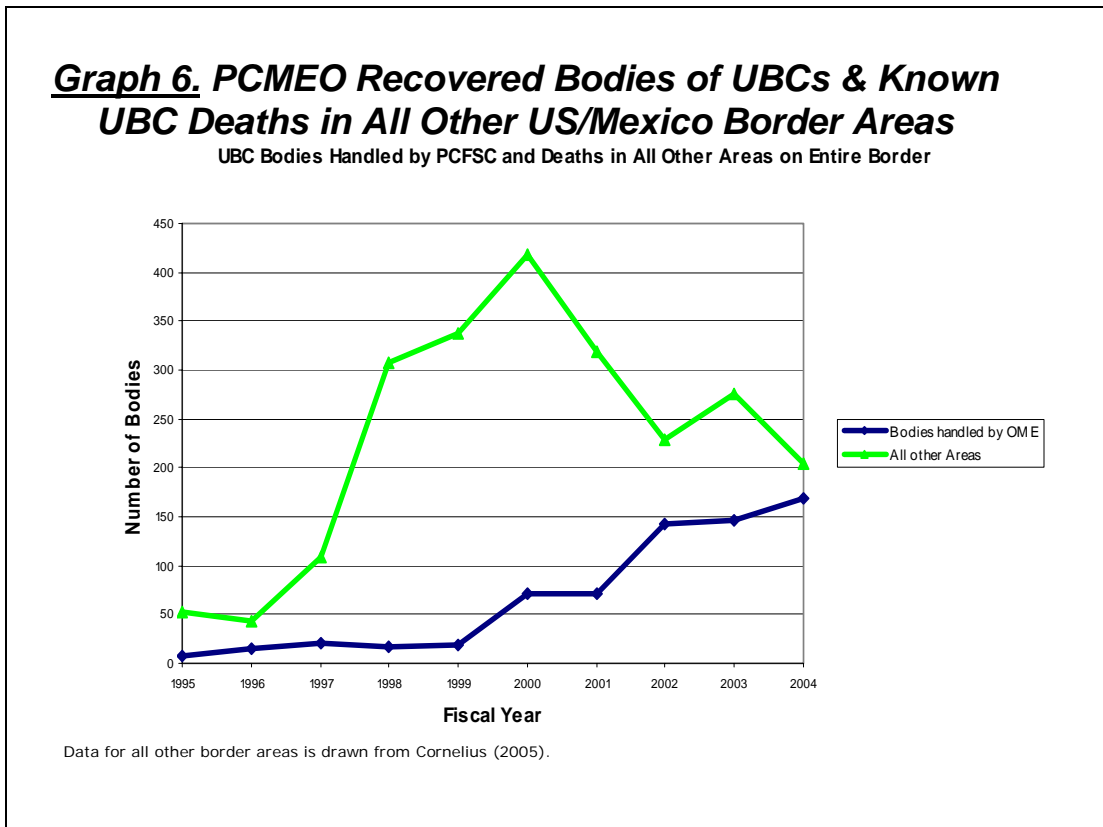
In other words, one possible reason why the "funnel effect" has led to more known UBC deaths is because more and more unauthorized migrants with limited experience and community networks regarding migration into the U.S. are vulnerable to the clearly established risks, created by the "funnel effect," of now crossing into the U.S. via the Sonora/Arizona corridor.

This plausible dynamic also helps to explain, at least in part, why the death rate continues to soar in this area even though, according to official Border Patrol statistics, apprehension numbers (as an indicator of the total number of people crossing into the U.S.) have, with some yearly fluctuations, decreased since 2000 (see Graph 5. below).



UBC Recovered Bodies in the Tucson Sector Compared to those in All Other Border Areas

Using UBC recovered bodies handled by the PCMEO from 1995-2004 as a very reliable measure of the general trend of increased known UBC deaths in the Border Patrol's Tucson Sector, the plot shown in **Graph 6.** below makes it clear, as suggested by the GAO's 2006 report, that the "funnel effect" has indeed been the primary factor underlying the dramatic increase in known UBC deaths in the Tucson Sector. Particularly after the year 2000, irrespective of some year-to-year fluctuations, as such deaths steadily declined in all other border areas, they steadily increased in the Tucson Sector.



DISCUSSION OF FINDINGS

Indisputably, according to all authoritative reports, including the unique data presented herein by BMI, since at least fiscal year 1999, the Border Patrol's Tucson Sector has been ground zero for the unprecedented influx of hundreds of thousands of economic, primarily unauthorized migrants from Mexico, Central America, and South America.

Such migrants come to the U.S. in order to escape extreme poverty or, as is commonly the case, for instance, to save enough money to be able to afford improved housing or other basic necessities in their home country by taking on labor-intensive, low wage jobs that, for many decades, have been systematically offered to them by U.S. employers and homeowners who want to pay less than standard U.S. wages for their services.

Equally clear, vast numbers of such migrants have not chosen to clandestinely cross into the U.S., year after year, through the most perilous and deadly portion of the southwestern U.S. on a whim. Instead, they knowingly and unknowingly risk injury and death by attempting to enter the U.S. through the main route that has been, at a multi-billion dollar price tag to American taxpayers, intentionally structured by the U.S. government through the implementation of a "prevention-through-deterrence" immigration control policy.

As recently confirmed by the GAO and BMI, in the late 1980s and early 1990s, the number of unauthorized border-crosser (UBC) deaths along the entire U.S./Mexico border as well as in the Border Patrol's Tucson Sector was declining. Actually, massive migration and double-digit migrant deaths were rare (and triple-digit deaths were totally unknown) to Arizona at that time. In contrast, after the "funnel effect" created by U.S.

policies took hold and the major, unauthorized migration corridor into the U.S. became, among other remote and dangerous routes, the Sonoran Desert, there was, as loudly predicted by immigration experts and migrant advocates a decade ago, an exponential increase in recovered UBC bodies in the Tucson Border Patrol Sector from 1990 to 2005.

According to BMI data, there were 9 known UBC deaths handled by the Pima County Medical Examiner's Office (PCMEO) in Tucson, Arizona, in 1990 and 201 UBC recovered bodies in 2005.

Consequently, at great cost to Pima County, the overburdened PCMEO has skillfully and compassionately shouldered the responsibility of processing, identifying, and storing the almost 1,000 UBC recovered bodies that have come through its doors since 1990 due to short-sighted U.S. federal policymaking that has not, according to every possible measure, achieved its stated goal of reducing the number of unauthorized border crossers entering the U.S.

While previous research made it clear that the Border Patrol's Tucson Sector has been the epicenter of this tragic, "humanitarian crisis" created by a U.S. policy that, to the detriment of thousands of relatively poor men, women, and children who, because they have pursued the natural human desire to improve their chances of economic well-being, have suffered and died in the American Southwest, the exact nature and magnitude of "the most systematic violation of human rights occurring on U.S. soil today" was not precisely or scientifically detailed, measured, and analyzed until now.

By carefully discovering and examining every single UBC recovered body that has been handled by the PCMEO, which has processed approximately 90% of all the known unauthorized migrant deaths that have occurred in the Border Patrol's Tucson

Sector, the BMI has created the first-ever count and advanced statistical analysis of each and everyone of these deaths from 1990-2005.

After comparing our findings to numbers produced by other scholars and the U.S. Border Patrol, BMI has also confirmed that the best way to methodically study such deaths is by a hands-on analysis of autopsy reports prepared by medical examiners and coroner's offices, rather than, for instance, a comparatively narrow and incomplete sampling of the national database of death certificate records.

Likewise, as partly suggested by the GAO, the U.S. Border Patrol in particular needs to expand its criteria for classifying UBC recovered bodies; the current criteria excludes many known border-crosser deaths along the border as well as in the U.S. interior.

Furthermore, reliable recognition and analysis of such deaths is best done by researchers with in-depth, ethnographic knowledge of the nature of cross-border migration and border enforcement in their respective areas. Not only do BMI researchers know, for instance, the major pathways followed by unauthorized border crossers in southern Arizona's deserts and mountains, we have all traversed these trails for ourselves.

Until research along the lines of the BMI study is conducted along the entire U.S./Mexico border (and, ideally, supplemented with data on known UBC deaths in the U.S. interior and Mexico, as well as a significant analysis of missing person reports from UBC "sending communities"), our knowledge of the full impact and nature of the "funnel

effect” will be incomplete and, most likely, a significant underestimate of fatalities correlated with U.S. immigration control practices along the border.

It is essential to emphasize that at present, the entire corpus of data about known unauthorized border-crosser deaths in the U.S. both before and during the “funnel effect” is, at best, only an incomplete tally of UBC bodies that have been reported, discovered, recovered, and properly identified as UBC decedents. The current state of knowledge only allows researchers to authoritatively analyze **UBC Recovered Bodies**, not the currently unknown, some experts think unknowable, number of all migrants who have perished while attempting to enter the U.S. through the migration funnel now known as *The Devil’s Highway*.

Further research & multi-agency coordination is clearly needed to increase rates of successful identification of dead unauthorized border crossers throughout the U.S., especially in the southwestern Border States, where the percentage of unidentified UBC bodies in some U.S. Border Patrol sectors is well beyond one-third of all known UBC decedents. Fortunately, the exemplary work done by the Pima County Medical Examiner’s Office, in what has been the mostly deadly sector over the past decade, demonstrates that rates of successful identification of known UBC fatalities are directly related to the identification efforts utilized by medical examiners/coroners and interrelated government agencies (e.g., from the Border Patrol to the Mexican Consulate).

Based on the strong findings reported herein, therefore, BMI is currently planning additional research and inter-agency policy recommendations to create standardized identification protocols throughout the Border States. Major elements of this research include a systematic assessment of the protocols utilized by other medical

examiners/coroners throughout the U.S. Southwest and an exact accounting of their rates of UBC bodies left unidentified; a comparison of these approaches and rates to those of the seemingly more successful PCMEO; creation of a standardized identification protocol; and implementation of the standardized protocol throughout the U.S.

We also hope that the data collection criteria and the various types of statistical analyses developed and tested by BMI, will serve as a useful guide to future research on UBC recovered bodies throughout the U.S. and Mexico over a period of time that includes what was happening before and during the devastating “funnel effect.”

Comprehensive data along these lines will not only help us to understand what has happened in the past in various, distinct areas along the border and elsewhere, but to further pinpoint and explain the inherent structural relationship between UBC suffering and death and U.S. border enforcement and immigration control strategies. In the best of all worlds, policymakers can then utilize such data in order to prevent another “funnel effect” in some other, highly perilous crossing point (as looks like what might happen in the future given, for instance, current federal plans for fencing off portions of the Arizona border with gaps in equally remote areas).

And, of course, the best chances of reducing the number of economic UBCs entering the U.S., lie not with misconceived measures based on concerns about national security or drug trafficking, interrelated but separate issues, but rather on comprehensive immigration reform rooted in an honest assessment of the embedded role of migrant labor in the U.S. as well as the forces of globalization in North America, Central America, and South America.

Without this, there is little chance that the Border Patrol safety initiatives will significantly reduce injury and death among UBCs. As it stands, and as recently confirmed by the GAO, there is currently no evidence to support recent Border Patrol claims that any of their programs (e.g., BORSTAR, lateral and interior repatriation, rescue beacons, the BSI media campaign to warn would-be UBCs of the risks associated with crossing into the U.S. via its southwestern landscape, etc.) prevent large numbers of unauthorized border crossers from dying in the deserts along the US/Mexico border.

Furthermore, even if immigration experts one day confirm that such measures are effective and necessary to prevent UBC deaths, which is highly unlikely, diametrically opposed immigration management mechanisms that, on the one hand, heighten the probability of death and, on the other hand, attempt to reduce or even end injury and death, makes little sense and is highly questionable regarding the universal human rights of economic migrants.

BMI's rigorous and scientifically reliable analysis of PCMEO autopsy reports, as well as the GAO's 2006 report on known migrant deaths along the border, leaves no doubt that the exponential increase in UBC deaths in the Border Patrol's Tucson Sector from 1990-2005 is the inevitable result of the "funnel effect" created by the U.S. government's "prevention through deterrence" immigration control policies. Prior to the "funnel effect" created by such policies, for instance, UBC deaths across the entire US/Mexico border as well as in the Tucson Sector were on the decline, Afterwards, as deaths significantly decreased in adjacent Border Patrol sectors, it, especially deaths due to heat-exposure, always the leading cause of UBC deaths in southern Arizona, significantly increased in the Tucson Sector.

Based not on a problematic sample of all of the 927 UBC recovered bodies handled by the PCMEO from 1990-2005, but rather on a reliable and reproducible analysis of every single one of those deaths, the BMI has greatly enhanced the current state of knowledge about the nature and magnitude of such deaths. Additionally, the BMI has produced the first-ever list of all the identified unauthorized border crossers whose bodies were examined by the PCMEO over the past fifteen years (see [Appendix A](#)).

Overall, the major findings of the BMI study match or complement the results of other comparable, authoritative research. During the most intensive “funnel effect” years from 2000-2005, for instance, there has been a statistically significant increase in the number of known deaths of both male and female UBCs.

When controlling for age, men appear to be more likely to die of homicide than women (though, the vast majority die of heat-exposure), and women appear to be more likely to die of heat-exposure than men. Over 80% of the UBC individuals handled by the PCMEO have been under age of 40, and there is a discernable, upward trend in the number of dead youth under the age of 18 years old. When controlling for biological sex, it also appears that such youth are 3.4 times more likely to die in motor vehicle accidents than adults.

The statistically significant increase in death due to exposure to the elements (from 39.2% of all cases processed from 1990-1999 to 61.4% from 2000-2005) of all men, women, and children alike coincides with a decrease in deaths due to all other causes.

While the number of UBC deaths for which the “sending community” is unknown is high (almost ½ of all cases), BMI’s analysis of the UBC recovered bodies for which

the “sending community” is known, suggests that the regions of origin of the UBCs who are dying in the Arizona desert has changed significantly from the “pre-funnel effect” years of the late 1990s to the “funnel effect” years in the new millennium. Similar to the results of previously published research along these lines, BMI analysis indicates that there has been a statistically significant decrease in the number of UBCs from northern Mexico and a statistically significant increase in the number of UBCs from central and southern Mexico. This apparent shift in the Mexican “sending regions” of UBC recovered bodies might be explained, in part, by the relative inexperience of those from Mexico’s central and southern states in covertly crossing into the U.S. for work as well as an actual increase in the number of non-northerners attempting to cross the border.

Princeton’s Douglas Massey, one of the country’s leading immigration experts who has extensively studied migration patterns from Mexico to the U.S. for many decades, along with other highly-respected scholars, has frequently stated that official apprehension figures are virtually useless for making accurate inferences about the volume of unauthorized migration into the U.S. Such figures are indeed a measure of the number of apprehensions and not a measure of the number of people who have been apprehended. Furthermore, it is commonly assumed that many UBCs attempt multiple re-entries into the U.S. and are thus apprehended and deported multiple times (and the U.S. Border Patrol has, thus far, been unwilling to make recidivism figures available to the scholarly community or the public). Additionally, without access to rates of recidivism, it is difficult to know if fluctuations in apprehension figures reflect a change in the number of multiple re-entries or a change in the actual number of people being apprehended.

Despite this, it is true that from one year to next, apprehension figures measure the same thing, that is, the number of officially recorded apprehensions. For this reason, unless rates of apprehensions are significantly different for different “sending communities,” or unless apprehensions are primarily determined by the intensity, or lack there of, of border enforcement measures,” both distinct possibilities, it seems that fluctuations in such rates might be an imperfect but nonetheless telling indication of a change in the numbers of UBCs attempting to enter the U.S.

If this is the case, and it is true that more vulnerable people from central and southern Mexico make up a larger proportion of all UBCs than in the past, this might also help to explain, why the number of UBC recovered bodies has continued to increase while the number of official apprehensions has decreased since 2000.

In regard to distinct migration experiences of people from different “sending communities,” when controlling for age and biological sex, BMI’s regression analysis also indicates that, when controlling for age and biological sex, non-Mexican UBCs appear to be 3.4 times more likely to die in a motor vehicle accident than Mexicans, and people from Mexico’s *Centro* region appear to be less likely to die in a motor vehicle accident than those from all other areas in Mexico. Why this might be the case is difficult to know and requires further study.

Finally, because the causal connection between the “funnel effect” and the increased rates of known UBC deaths has now been firmly established by previous research as well as BMI’s research, it seems reasonable to suggest that the U.S. government, rather than Pima County, should also be responsible for most of the extensive costs associated with recovering, examining, identifying, storing, and, in regard

to those who remain unidentified, burying unauthorized men, women, and children who perish while traversing the pre-determined funnel into the U.S. created by the federal government.

APPENDIX A.

Deceased Unauthorized Border Crossers

Processed & Identified by the Pima County Medical Examiner's Office, 1990-2005*

(A "Doe" designation following a name means that the decedent was initially unidentified)

1990

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
5/1/1990	Martinez, Carlos	52
5/7/1990	Carrillo, Miguel Angel/ Doe #20	29
6/7/1990	Guerrero-Chavez, Juan/ Doe #31	30
7/7/1990	Cardena, Luis Gonzalez	40
7/21/1990	Ortiz, Ruben Corona	UNKNOWN
10/18/1990	Coronel-Zazueta, Jose	26

1991

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
7/15/1991	Hernandez-Morales/ Doe #43	52
8/16/1991	Martinez, Juan C.	UNKNOWN

1992

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
7/2/1992	De Leon, Faustino N. Gomez	17
11/14/1992	Zavala, Raul Reyes	29

1993

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/12/1993	Lopez-Ibarra, Juan Andres	33
6/18/1993	Ayala-Ventura, Juana Elena	25
8/2/1993	Hernandez, Odilon Lopez/ Doe #34	22
8/5/1993	Perez, Adan Rublero	31
10/14/1993	Cardoza-Lopez, Jesus Antonio	UNKNOWN
11/19/1993	Rodriguez-Ramirez, Jesus Eberto	18
11/26/1993	Salcido, Gilberto Urquijo	19
12/2/1993	Rodriguez, Antonio Infante	23

1994

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
7/26/1994	Martinez-Garcia, Alfonso	44

1995

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/17/1995	Alvarez-Guadarrama, Rodolfo	48
3/9/1995	Lugo-Castro, Luis Enrique	24
5/20/1995	Martinez-Ibarra, Alejandro	27
11/4/1995	Alvarez-Salcedo, Rafaeal	38
12/21/1995	Cortez, Carmen Aguilar	45

*This list was compiled from the BMI Database of UBC Recovered Bodies by Inez Magdalena Duarte.

1996

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
2/9/1996	Padilla-Ortiz, Jose Humberto	59
6/15/1996	Olivas-Cebreros, Gonzalo	34
6/15/1996	Olivas-Cebreros, Arcenio	29
6/15/1996	Soto-Munoz, Antonio	20
6/16/1996	Guicho-Almeida, Sergio	31
6/16/1996	Mazoraqui-Lopez, Jose	32
6/21/1996	RAMIREZ-TAPIA, DAVID	27
6/25/1996	Cardenas-Salazar, Jesus	35
7/3/1996	Montero-Torres, Enrique	19
10/18/1996	Acosta-Franco, Jorge Arturo	27

1997

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
3/4/1997	Celso Mendoza Rodriguez	32
3/19/1997	Melvin Osorio	21
3/20/1997	Isaias Marcilino Ordones-Vasquez	24
3/24/1997	Juan Jose	UNKNOWN
3/27/1997	Pedro Sandoval Estrada	32
7/1/1997	Roberto Urbano Torres	54
7/11/1997	Jose Nava	UNKNOWN
8/17/1997	Paola N Salazar	12
8/17/1997	Antonia C Garcia	35
8/17/1997	Nadia Ahumada	12
8/17/1997	Everardo G Ahumada	10
8/17/1997	Marcela G. Mendez	23
9/21/1997	Jose Luis Cano-Velasquez	36
9/21/1997	Juan Robles-Palencia	25
9/21/1997	Teresa Arreola Raya	28
12/14/1997	Oscar Pena Moreno	32

1998

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
5/3/1998	Joel Orlando Ibarra Lugo	21
6/28/1998	Rosa Cardenas	23
7/13/1998	Juvenal Silva-Ramirez	UNKNOWN
7/14/1998	Rene Hernandez	18
7/25/1998	Sonja Soto-Escalante	17
7/28/1998	Ana Claudia Villa Herrera	17
7/29/1998	Miguel Angel Vasquez Godinez	23
8/20/1998	Elidia Martinez-Macario	27

1998, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
8/23/1998	Rolando Morales Solano	28
9/2/1998	Arturo Acosta Soto	27
9/9/1998	Antonio Renteria Martinez	26
9/20/1998	Jose Martin Molina Panuco	23

1999

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
2/14/1999	Telesforo	42
4/4/1999	Hector Lopez Carrizosa	30
4/5/1999	Cesar Ramos Fernandez	44
5/15/1999	Martin Ortega-Campos	33
6/15/1999	Ramon J Gonzalez Salazar	51
6/17/1999	Cuahtemoc Lavin Valentin	45
6/17/1999	Hector Lavin Martinez	25
6/24/1999	Jose Guadalupe Llaninto-Villalobos	35
7/4/1999	Aaron Moises Delgado Lopez	18
7/7/1999	Alejandro Felix Barraza	19
7/21/1999	Roberto Ramirez-Ramirez	47
7/24/1999	Manuel Artalejo	19
8/1/1999	Carmen Margarita Martinez	19
9/19/1999	Veronica Nadia Lopez Munoz	21
10/26/1999	Olivio Claudio Velazquez-Perez	53
11/11/1999	Modesto Santos-Flores	20
11/23/1999	David Maldonado Quijada	29

2000

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/22/2000	Tomas Mateo Nicolas	17
2/5/2000	Maria Del Rocio Candia-Bravo	UNKNOWN
2/5/2000	Natali Enriquez-Hipolito	UNKNOWN
2/5/2000	Luis Roberto Morales Avenado	UNKNOWN
2/5/2000	Emma Montecarlo Castillo	40
2/14/2000	Isidro Digno Gamez	40
2/29/2000	Delia Moreno Perez	24
3/6/2000	Vicente Gonzalez-Ramirez	46
3/6/2000	Alfredo Uvieta Dominguez	34
3/7/2000	Jose Ines Diaz Gonzalez	18
3/20/2000	Gerardo Nevarez Gallegos	26
3/23/2000	Jose Luis Rojas Inigo	30
3/30/2000	Carlos Miguel Gonzalez Corona	17
4/5/2000	Angel Selvas Ruiz	34
4/14/2000	Zenon Resendiz Nieto	27
4/16/2000	Herlindo Martinez-De Jesus	28
4/27/2000	Eusebio Garcia-Perez	33
5/9/2000	Marina Montano Mercado	26

2000, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
5/18/2000	Jose Angel Adrian Mendoza Mendoza	40
5/21/2000	Hector Guadalupe Sanchez-Murrieta	22
5/23/2000	Fermin Aguilar Rabadan	34
5/29/2000	Yolanda Gonzalez Galindo	19
5/30/2000	Maria Cruz-Ruiz	45
5/30/2000	Maura Zacarias Sanchez	31
5/31/2000	Juana Medina Butanda	41
5/31/2000	Juan Manuel Acosta Rojas	28
6/1/2000	Enrique Soto Pacheco	19
6/3/2000	Oscar Cervantes-Melquiadez	19
6/3/2000	Froylan Flores-Hernandez	32
6/3/2000	Hugo Sanchez Acevedo	18
6/5/2000	Jose Guadalupe Rico-Sanchez	35
6/5/2000	Guillermina Herrera Guzman	26
6/6/2000	Mainor Gerardo	23
6/7/2000	Enedina Torralba-Martinez	26
6/14/2000	Mario Calderon Jimenez	10
6/14/2000	Eutiquio Dorentes Marin	45
6/15/2000	Laura Vargas Ortiz	22
6/19/2000	Pedro Basulto Neri	20
6/26/2000	Jose Manuel Leos	36
6/28/2000	Antonia Mendez Mendez	16
7/7/2000	Modesta Perez-Pacheco	45
7/24/2000	Victor Manuel Blas-Vargas	29
7/24/2000	Mauro Garcia Martinez	31
7/27/2000	Raul Lopez-Sachez	25
8/9/2000	Demetrio Velez Garcia	25
8/15/2000	Amador Cazares-Sanchez	22
8/23/2000	Miguel Angel Chiguil-Arres.	14
8/29/2000	Rigoberto Alvarado Garcia	24
8/29/2000	Omar Alfredo Cerna-Giraldo	20
8/29/2000	Herlinda Infantes-Mejia	28
9/3/2000	Paula Isela Romero-Palacios	23
9/5/2000	Isaura Bibiana Medina Paredes	25
9/12/2000	Fortino Herrera-Gervasio	24
9/12/2000	Juventino Merida-Fuentes	52
9/21/2000	Norma Leticia Herrera-Navarro	21
9/29/2000	Olivia Vallarta-Coronado	32
10/28/2000	Angel Ledesma-Raya	43
10/31/2000	Jose Luis Lopez-Martinez	UNKNOWN
11/12/2000	Juan Pinacho-Rodriguez	26

2001

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
5/9/2001	Fernando Cruz-Mendoza-Cruz	31
5/17/2001	Alicia Adela Sotelo-Mendoza	46
5/23/2001	Felipe Sanchez-Najera	53
5/24/2001	Lorenzo Hernandez-Ortiz	34
5/24/2001	Raymundo Barreda-Landa	15
5/24/2001	Reyno Bartolo-Fernandez	37
5/24/2001	Mario Castillo-Fernandez	25
5/24/2001	Enrique Landeros-Garcia	30
5/24/2001	Raymundo Barreda-Maruri	54
5/24/2001	Julian Ambros-Malaga	24
5/24/2001	Alejandro Marin-Claudio	28
5/24/2001	Arnulfo Flores-Badillo	42
5/24/2001	Edgar Adrian Martinez-Colorado	23
5/24/2001	Sergio Ruiz-Marin	23
5/24/2001	Efrain Gonzalez-Manzano	24
5/24/2001	Heriberto Badillo-Tapia	18
6/1/2001	Daniel Beltran-Rojas	24
6/1/2001	Armando Rosales-Pacheco	25
6/3/2001	Buenaventura Ayala-Zamora	45
6/8/2001	Roberto Bautista Lopez	19
6/11/2001	Anastacio Lopez-Guerrero	38
6/16/2001	Martin Espinoza-Cruz	40
6/18/2001	Adela Salas-Perez	30
6/19/2001	Guadalupe Octaviano-Nieto	21
6/20/2001	Enrique Mendoza-Castillo	42
6/22/2001	Rosario Sanchez-Rogel	45
6/25/2001	Lauro Barrio-Dominguez	23
6/26/2001	Jose Romero-Luna	43
6/30/2001	Maria Dolores Espinoza-Morales	31
7/2/2001	Alvaro Segovia-Garcia	22
7/2/2001	Julio Cesar Garcia-Soto	23
7/2/2001	Francisco Carreles-Camacho	26
7/2/2001	Alejandro Gutierrez-Hernandez	46
7/7/2001	Alberto Maldonado-Viveros	30
7/11/2001	Esteban Duran-Aburto	31
7/12/2001	Carlos Armando Bustamonte-Garcian	22
7/13/2001	Jorge Alonso Mirelles	24
7/14/2001	Juana Martinez-Miranda	26
7/15/2001	Andrea Alcantar-Cruz	24
7/20/2001	Abel Gonzalez-Dominguez	34
7/24/2001	Hermila Romero-Carreon	29
7/30/2001	Lugarda Iracema Martinez-Jiminez	19
8/1/2001	Petra Veronica Tenorio-Soto	30
8/7/2001	Santiago Pacheco-Ramirez	43
8/22/2001	Dalvin Eugenio Urbina-Kirk	21

2001, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
8/29/2001	Didier Villanueva-Garcia	27
9/2/2001	Catalina Ventura-Mendoza	43
9/2/2001	Irene Gutierrez-Hernandez	35
9/4/2001	Lizbeth Juarez Riofrio	23
9/11/2001	Mateo Gaspar-Vargas	43
9/21/2001	Lydia Dimas-Tellez	27
9/25/2001	Graciela Alvarado-Hernandez	28
11/5/2001	Heriberto Nunez-Robles	25
11/25/2001	Casimaro Torres	38
11/28/2001	Ernesto A Gutierrez-Ramirez	16
11/28/2001	Jose Garcia	24

2002

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/6/2002	Cesar Leobardo Arguellas-Herrera	30
1/8/2002	Maria Luisa Leticia Lozano-De La Rosa	32
1/27/2002	Tomas Molina-Perez	35
2/18/2002	Martin Martinez-Grijalva	38
2/19/2002	Carlos Garcia-Aguirre	25
2/20/2002	Castulo Salazar-Ontiveros	54
2/24/2002	Domitila Mondragon Alvarado	38
3/11/2002	Miguel Fructuoso-Hernandez	44
3/15/2002	Miguel Ochoa-Gonzalez	39
3/22/2002	Arturo Heras-Espinoza	34
4/7/2002	Jesus Rojas-Villas	35
4/12/2002	Alfonso Hernandez-Hernandez	23
4/12/2002	Victor Diaz-Acevedo	29
4/12/2002	Claudio Martinez-Cortez	34
4/18/2002	Martin Moreno-Montero	45
5/7/2002	Juana Gonzalez	26
5/7/2002	Alonso Caloca-Vargas	27
5/19/2002	Jose Lara-Avila	19
5/22/2002	Simeon Diaz De La Cruz	41
5/28/2002	Rene Resendiz-Rodriguez	26
5/30/2002	Salvador De La Paz Macedo	21
5/31/2002	Francisco Javier Trujillo-Ruiz	18
5/31/2002	Rene Rodriguez-Ramirez	22
6/6/2002	Raul De Anda-Lopez	54
6/6/2002	Norma Rodriguez-Amaro	22
6/7/2002	Margarita Rio-Rodriguez	30
6/7/2002	Jaime Rodriguez Gutierrez	25
6/7/2002	Sofia Rubio-Chavez	19
6/7/2002	Antonio Vargas-Torres	24
6/8/2002	Santiago Arcos-Mota	28
6/8/2002	Jose Manuel Raygoza Gil	14

2002, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
6/8/2002	Maria Guillermina Sanchez-Salto	30
6/8/2002	Alex Sosa-Coba	24
6/8/2002	Paula Hernandez-Tapia	31
6/8/2002	Rogelio Cruz-Cervantes	52
6/9/2002	Arturo Luciano Gomez-Castro	27
6/9/2002	Ricardo Pantaleon-Santiago	18
6/9/2002	Victor Galindo Torres	21
6/10/2002	Luis Fernando Us Tun	18
6/13/2002	Margarito Escoricia-Franco	26
6/14/2002	Arturo Ruiz-Gutierrez	23
6/14/2002	Maria Elena Lopez-Gomez	17
6/16/2002	Adilene Lopez-Moreno	11
6/17/2002	Rafaeal Lopez-Mendez	19
6/18/2002	Santos Fabian Gonzalez-Paredes	21
6/19/2002	Eva Hernandez-Escarcega	31
6/19/2002	Angeles Contreras-Gonzalez	22
6/23/2002	Carlos Valdez-Gortari	46
6/22/2002	Jose Luis Hernandez-Aguirre	25
6/23/2002	Jose Mendez-Gomez	26
6/23/2002	Saul Segura Oliveros	21
6/24/2002	Domingo Lopez-Lopez	20
6/26/2002	Gonzalo Gonzalez-Saldana	34
6/28/2002	Blanca Estela Garcia-Reyes	36
6/29/2002	Ramiro Garcia-Abarca	18
6/29/2002	Mauro Santos-Tolentino	55
7/3/2002	Jose Salazar-Velarde	46
7/3/2002	Blanca Reyna Salinas-Espinoza	23
7/5/2002	Ruben Gonzalez-Miranda	49
7/5/2002	Jesus Torres Santiago	20
7/5/2002	Alejandro Hernandez-Badillo	16
7/9/2002	Cristina Dominguez-Librado	35
7/9/2002	Maximo Barrera-Esquivel	35
7/11/2002	Leonel Tuxpan-Grano	33
7/12/2002	Francisco Javier Roman Olivan	18
7/12/2002	Raul Estrada-Frias	26
7/13/2002	Joel Aguila Hernandez	28
7/14/2002	Ismael Tepox-Gamboa	35
7/14/2002	Eledi Sanchez-Cirilo	41
7/18/2002	Maria Dolores Moreno-Trejo	10
7/18/2002	Dolores Trejo-Ramirez	53
7/21/2002	Alberico Cordova-Robledo	43
7/21/2002	Oscar Irineo-Santillan	18
7/21/2002	Maria De Jesus Ruiz Garcia	31
7/22/2002	Jesus Balandran-Hernandez	43
7/27/2002	Damaso Rosales-Zamudio	27

2002, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
8/4/2002	Juan Manuel Dominguez Quintero	33
8/8/2002	Jorge Antonio Yin-Cervantes	28
8/8/2002	Jaime Artega-Alba	22
8/8/2002	Adalberto Lopez-Zuniga	37
8/9/2002	Panfilo Murillo Aguilar	28
8/10/2002	Mirabel Munoz-Bustos	22
8/10/2002	Claudia Patricia Oquenendo-Bedoya	40
8/10/2002	Elizabeth Hahuatzi Martinez	36
8/11/2002	Roberto Rodriguez-Rodriguez	14
8/11/2002	Francisco Tovar-Frausto	41
8/11/2002	Mari Carmen Serapio-Xaltenco	19
8/14/2002	Alejandrina De La Soledad Felix Sanchez	23
8/15/2002	Leandro Bautista Alba	58
8/15/2002	Enriqueta Martinez-Velasquez	46
8/16/2002	Jose Alonso Pulido	43
8/17/2002	Juana Santa Cruz Garcia	34
8/17/2002	Conrado Negrete-Venegas	39
8/26/2002	Eugenio Reyes-Gonzalez, Doe 94	48
8/27/2002	Alfredo Escobar-Lopez	37
8/28/2002	Alma Del Cruz-Lopez	25
8/31/2002	Jesus Humberto Ballesteros-Ortiz, Doe 98	17
8/31/2002	Pablo Hernandez-Espinoza	27
8/31/2002	Hipolito Hernandez Santiago	38
9/1/2002	Luis Bernardo Rodriguez-Tuyub	15
9/3/2002	Gilberto Menendez Gutierrez	33
9/4/2002	Alfaro Marquez-Campos	22
9/4/2002	Cecilio Cabrera-Pedro	37
9/5/2002	Maria De La Cruz Magana-Hernandez	20
9/5/2002	Maria Elena Morales-Sierra	45
9/5/2002	Jose Carlos Wicab-Chable	15
9/5/2002	Omar Sanchez Guevara	26
9/6/2002	Raquel Diaz Sarabia	34
9/9/2002	Jose Luis Rodriguez-Coronel	42
9/9/2002	Victor Manuel Talavera Figueroa	27
9/14/2002	Victor Hugo Davila-Ehuan	24
9/14/2002	Juan Rodriguez Sanchez	24
9/16/2002	Franklin Silva	30
9/16/2002	Jose Luis Vergara Flores	38
9/20/2002	Abel Martinez Faustino	17
10/11/2002	Carlos Garcia Bravo	18
10/16/2002	Jose Guadalupe Juarez Lopez	40
10/25/2002	Armando Saldivar-Flores	39
12/4/2002	Alejandro Lopez Lopez	48
12/25/2002	Rosa Mercedes Cano Dominguez	31

2003

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/4/2003	Oscar Borbon Mendoza	34
1/25/2003	Jose Antonio Perez Rubio	16
2/11/2003	Felipe Antonio Villafana-Rosario	33
2/11/2003	Ricardo Ibarra Tellez	43
2/11/2003	Elia Perez-Ramiez	38
2/11/2003	Reyna Mercedes Peguero Sanchez	30
2/11/2003	Amalia Ortiz-Licona	22
2/14/2003	Cesario Ruiz-Cortez	54
2/15/2003	Gonzalo Gomez-Gomez	42
4/3/2003	Celso Villa Mexico	18
4/13/2003	Antonio Mora Martinez	38
4/26/2003	Pedro Bautista	Stillborn
4/22/2003	Juan Jeronimo Altamirano	33
4/25/2003	Mariano Duran-Saucedo	40
5/1/2003	Gabriel Torres-Alcala	47
5/3/2003	Octavio Lopez Felix	24
5/17/2003	Jose Lopez Cardenas	35
5/21/2003	Jose Andres Aguayo Contreras	30
5/22/2003	Jose Luis Rodriguez Tavarez	38
5/23/2003	Jose Refugio Del Angel Ferral	42
5/23/2003	Francisco Chavez-Mojica	40
5/24/2003	Fidel Velasquez Perez	17
5/24/2003	Josefina Martinez Sanchez	40
5/25/2003	Jose Avila	64
5/27/2003	Martin Gallegos Perez	28
5/27/2003	Guillermo Federico Sanchez-Lomeli	27
5/29/2003	Luis Miguel Villa Castillo	20
5/29/2003	Jose Ignacio Sanchez Chaparro	43
5/29/2003	Avelino Andres Cabrera Gonzales	43
5/29/2003	Teresa Velasquez	16
5/29/2003	Jose Alberto Lozano Martinez	31
5/29/2003	Genaro Rosales-Martinez	26
6/1/2003	Matias Juan Garcia Zavaleta	29
6/2/2003	Roberto Torres Ramirez	28
6/3/2003	Rene Olvera-Medina	60
6/8/2003	Mario Gonzalez-Hernandez	45
6/12/2003	Elizabeth Sanchez Acosta	25
6/14/2003	Maria Cristina Hernandez Perez	2
6/14/2003	Clemen Aguilar-Izaguirre	24
6/16/2003	Jorge Aburto-Zamorano	38
6/17/2003	Sergio Mejia Perez	26
6/18/2003	Natividad Carlota De Leon Maldonado	37
6/29/2003	Eliseo Vargas Luna	29
7/1/2003	Keila Madai Velazquez-Gonzalez	15
7/1/2003	Adrian Diaz Dionicio	35

2003, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
7/2/2003	Isabel Lucrecia Paxtor Morales	22
7/3/2003	Nivercino Rodrigues Da Silva	39
7/3/2003	Antonio Alvarez Solorzano	50
7/4/2003	Pedro Xochicale Tlapalcoyoa	21
7/7/2003	Hermina Fuentes-Sanchez	29
7/8/2003	Maria Florinda Xum Chan	30
7/9/2003	Nora Huertas-Hernandez	19
7/10/2003	Antonio Sanchez Montoya	32
7/12/2003	Antonio Rolon Hernandez	27
7/13/2003	Ermeria Jeanette Martinez Matias	31
7/13/2003	Maria Guadalupe Cayetano Cornelio	19
7/14/2003	Carlos Rojas Morales	24
7/14/2003	Maria De Los Angeles Contreras-Rojas	18
7/15/2003	Maria Guadalupe Vasquez Saavedra	21
7/15/2003	Fortino Vasquez Garcia	41
7/17/2003	Sergio Benitez Hernandez	38
7/16/2003	Esteban Salvador Sanchez Rojas (Doe #73)	29
7/16/2003	Enrique Antonio Lopez Alcantar	18
7/19/2003	Esequiel Vargas Mora	33
7/20/2003	Mauricio Salas Guerra	38
7/21/2003	Agustin Hernandez-Jimenez	23
7/21/2003	Ofelia Maria Garcia Chavaloc	33
7/21/2003	Maria Josefa Tax Hernandez	37
7/21/2003	Amado De Jesus De Jesus	28
7/22/2003	Martin De Jesus Bernabe	19
7/25/2003	Miguel Rodriguez-Marentes	56
8/7/2003	Flora Maria Reyes-Cruz	16
8/9/2003	Alfredo Gundino-Ruiz	22
8/9/2003	Cruz Fabela Munoz	44
8/10/2003	Juan Reyes Luna (Doe #94)	42
8/10/2003	Jose Fernando Martinez-Fuentes	31
8/13/2003	Wilmer Germain Quintanilla	26
8/12/2003	Manuel De Jesus Sanchez	25
8/14/2003	Ilda Roblero Roblero	23
8/15/2003	Juan Antonio Nila Valdivia	20
8/17/2003	Jose Manuel Gomez Cruz	16
8/17/2003	Nicolas De Jesus Garcia Ventura (Doe #103)	55
8/18/2003	Jaime Monroy Gamino (Doe #104)	28
8/18/2003	Victor Manuel Placencia Basilio	27
8/20/2003	Lorenzo Lopez Diaz	21
8/26/2003	Lucio Hernandez-Hernandez	25
8/27/2003	Carlos Ramon Bejarno Cruz	24
8/27/2003	Efrain Castro Ramirez (Doe#109)	50
8/30/2003	Antonio Garcia Gomez	28
8/30/2003	Ruben Garcia Gamino	21

2003, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
8/30/2003	Miguel Cruz-Laurel (Doe#113)	57
9/1/2003	Miguel Diaz-Garcia	25
9/2/2003	Miguel Ernesto Guardado Flores	19
9/2/2003	Raymundo De Jesus Rodriguez Tobar	33
9/2/2003	Transito Guzman Escobar	35
9/8/2003	Ana Cruz-Garcia	31
9/9/2003	Willian Oswaldo Valle Alfaro (Doe 121)	20
9/13/2003	Juan Carlos Rico Orihuela	19
9/15/2003	Rolando Arce Valenzuela	24
9/18/2003	Nahum Martinez Solano	24
9/20/2003	Rafael Martinez Ruiz	34
9/22/2003	Jorge Rolando Cano Yeh	27
9/23/2003	Rosa Maria Arriaga Castillo	22
10/18/2003	Edgar Miguel Pucek	23
10/21/2003	Hilda Hernandez Baltazar (Doe #35)	38
10/24/2003	Faustino Berneo Rayon	31
10/25/2003	Daniel Haro (Doe 138)	21
11/4/2003	Nicholas Padilla Reyes	20
11/4/2003	Agustin Rita-Santos	40
11/4/2003	Isidro Gutierrez Reyes (Doe #144)	36
11/4/2003	Jose Manuel Alcon Villa (Doe #145)	26
11/24/2003	Valentin Estrada Bejarano (Doe#150)	38
11/30/2003	Andres Campana-Gonzalez (Doe#152)	30
12/1/2003	Altagracia Marbella Tapia-Guillen	21

2004

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/16/2004	Jose Marco Antonio Zavala	27
2/10/2004	Adrian Garnica Altamirano	20
2/10/2004	Eleuterio Guzman Hernandez	43
2/17/2004	Sotero Gomez Viveros	25
2/21/2004	Maria Lucia Martinez-Nava	26
3/2/2004	Carlos Castro Llescas	36
3/2/2004	Rolando Perez Vazquez	37
3/17/2004	Juan Loenel Lizarraga-Vizcarra	27
3/19/2004	Leopoldo Vazquez Hernandez	19
3/20/2004	Jaime Gonzalez Pablo	17
3/21/2004	Gabriel Ortega Flores	27
3/20/2004	Antonio Tirado Rodriguez	43
3/24/2004	Diana Raquel Garcia Velasco	19
3/24/2004	Dagoberto Solis De Coss	36
3/24/2004	Margarito Aguillares Hernandez	26
3/25/2004	Maria Del Carmen Sabino Garcia (Doe #12)	30
3/25/2004	Raul Ramos Chavez	19
4/3/2004	Jesus Esquivel Santiago	26

2004, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
4/3/2004	Rosario Munoz Berrelleza	36
4/3/2004	Reynael Cortinez Roblero	24
4/4/2004	Fortino Soto Armenta	28
4/4/2004	Rodrigo Miranda Rivera	35
4/9/2004	Norma Moreno Hernandez	30
4/12/2004	Francisco Javier Acosta Sandoval	37
4/20/2004	Tomas Soto Granados	43
4/20/2004	Reyes Campos Zalazar	42
4/20/2004	Carlos Molina Torres	33
4/28/2004	Fidelina Bravo De Marzan	42
5/1/2004	Mario Alberto Rodriguez Perez	25
5/3/2004	Jose Ruiz Bravo	40
5/4/2004	Alvaro Ramos De Castilla	21
5/9/2004	Maria Fabiola Paloma-Rios (Doe 15)	18
5/14/2004	Francisca Alicia Flores Guifarro	42
5/15/2004	Jose Juan Pacheco Salazar	25
5/19/2004	Carlos Caballero Gonzalez (Doe #61)	27
5/22/2004	Santos Martin Perez-Perez (Doe #59)	26
5/22/2004	Carmen Avila Vargas (Doe #17)	22
5/30/2004	Armando Mendoza	27
5/30/2004	Pascual Perez Funez (Doe #62)	38
6/2/2004	Jose Lorenzo Quintanilla	24
6/2/2004	Arnelio Serrano Portillo	39
6/2/2004	Jose Maria Aquino (Doe #65)	21
6/5/2004	Maria Cristina Salinas Gonzalez (Doe #19)	19
6/7/2004	Sofia Beltran Galicia (Doe 20)	21
6/8/2004	Carlos Alberto Argueta Lezma (Doe #71)	42
6/10/2004	Mario Soto Trejo (Doe #72)	30
6/10/2004	Emilio Leon Dominguez	24
6/11/2004	Marcelo Infante Pereyra (Doe #73)	28
6/12/2004	Jose Angel Miranda Escobar	22
6/13/2004	Julian Mayor Arbelaez (Doe #77)	20
6/13/2004	Olivo Martinez- De La Cruz	34
6/15/2004	Rosa Viviana Torres Corona (Doe #22)	26
6/16/2004	Emelia Perez Santiago	45
6/16/2004	Leopoldo Menedz Murrieta	20
6/17/2004	Leodan Vinicio Cabrera Sanchez (Doe #78)	20
6/17/2004	Manuel Luis Ramirez Herrera (Doe #67)	40
6/18/2004	Jaime Roberto Ortega Orellana (Doe #80)	26
6/18/2004	Angel Alberto Lizarraga Prado	26
6/18/2004	Isaac Melo Mejia (Doe #81)	26
6/18/2004	Adalberto Bello Encarnacion (Doe #82)	34
6/21/2004	Jovita Martinez Agudo (Doe #23)	42
6/24/2004	Raquel Hernandez-Cruz (Doe #24)	23
6/24/2004	Isaias Juan Galvez Perez (Doe #84)	28

2004, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
6/29/2004	Jorge Armando Say-Pacay (Doe #86)	32
7/3/2004	Ismael Gomez Herrera (Doe #87)	22
7/3/2004	Maricruz Farias-Amador (Doe #25)	24
7/3/2004	Blanca Estela Ferreyra Vidal	34
7/7/2004	Paulina Morales-Exiquio (Doe #26)	20
7/7/2004	Nancy Navarrete Hernandez (Doe #27)	26
7/9/2004	Maria De La Luz Florez Martinez (Doe #28)	30
7/9/2004	Librado Tolentino-Velasco (Doe #89)	47
7/9/2004	Mario Alberto Diaz Ponce (Doe #88)	36
7/10/2004	Oscar Belerrabano Hidalgo	26
7/11/2004	Julio Cesar Romero-Espargo (Doe #90)	23
7/12/2004	Marcos De La Cruz Sandoval	18
7/12/2004	Luis Armando Cataldo-Escorza (Doe #92)	21
7/14/2004	Maria Raimunda Ribeiro Silva (Doe #30)	53
7/19/2004	Salvador Andres Gonzalez Leyva (Doe #96)	28
7/20/2004	Sergio Cabrera Hernandez	26
7/22/2004	Ofelia Vicente Ixmai (Doe #33)	28
7/23/2004	Omar Francisco Ortiz Camacho	18
7/26/2004	Jesus Hernandez-Lopez	23
7/26/2004	Aurelio Rios Venegas (Doe #100)	51
7/26/2004	Veronica Duenas Ramirez	33
7/29/2004	Pablo Gerardo Lazaro (Doe #102)	24
7/31/2004	Rosa Pena Ocampo (Doe #37)	38
8/3/2004	Francisco Javier Sanchez Aguilar	31
8/5/2004	Luis Cisneros Ventura (Doe #105)	63
8/7/2004	Albertano Herrera Liborio (Doe #106)	25
8/10/2004	Maria Carina Cortes Portillo	50
8/12/2004	Madilio Gutierrez-Perez	20
8/15/2004	Manuel Batalla Gonzalez (Doe #110)	35
8/20/2004	Gustavo Adolfo Gonzalez Cruz (Doe #112)	17
8/22/2004	Jesus Roman Garcia (Doe 114)	35
8/25/2004	Jose Cruz Adame Zavala (Doe #115)	38
8/29/2004	Aurora Cuamba Magallon	32
8/30/2004	Jose Alfredo Garcia Martinez	31
8/30/2004	Enrique Morales Flores	44
9/1/2004	Pedro Alejandro Valencia Pinedo (Doe #119)	24
9/2/2004	Telesforo Santos Arroyo	38
9/2/2004	Victor Manuel Coyoy Sum (Doe #120)	51
9/5/2004	Olaf Avila Gonzalez (Doe #123)	19
9/7/2004	Leonardo Plata-Escamilla	41
9/8/2004	Jose Trinidad Alcocer Martinez (Doe #124)	37
9/14/2004	Abel Salina Cortes	17
9/14/2004	Humberto Hernandez-Hernandez	35
9/14/2004	Jose Narciso Hernandez-Ledesma	13
9/14/2004	Usterlin Trancito Mazariesgos Vazquez/Doe 125	27

2004, continued...

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
9/15/2004	Dante Roldan Flores (Doe #126)	18
9/25/2004	Casildo Almaraz-Hernandez (Doe #130)	41
9/28/2004	Alejandro Rangel Luna	27
9/28/2004	David Orozco Romo	20
9/28/2004	Miguel Dominguez Juarez	34
10/13/2004	Gregorio Martin Garcia-Cardenas	38
10/23/2004	Felipe Yanez Gonzalez (Doe #146)	15
10/29/2004	Octavio Ortiz Martinez (Doe #153)	44
11/2/2004	Leobardo Contreras Rodriguez (Doe #155)	33
11/12/2004	Emilio Solis Trinidad (Doe #156)	33
11/14/2004	Jose Salomon Guitierrez-Lopez (Doe #159)	UNKNOWN
11/26/2004	Miguel Hernandez Hernandez	43
12/2/2004	Maria Varela Dominguez (Doe #48)	41
12/7/2004	Martin Diaz Lopez (Doe #165)	29
12/27/2004	Josefina Jimenez Jeronimo (Doe #51)	42
12/30/2004	Julio César Moreno	55

2005

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
1/8/2005	Raziel Elhiu Bolanos Sanchez (Doe #4)	23
1/10/2005	Rosendo Martinez Ramirez	34
1/27/2005	Antonia Andrea Moran Aviles	34
1/31/2005	Raul Soto Vidales (Doe #10)	30
2/10/2005	Michelle Acosta Gonzalez	16
2/11/2005	Roberto Viguerrillas-Valenzuela	49
2/14/2005	Maurilio Piceno Garcia (Doe #14)	28
2/19/2005	Julio Cesar Yanez Ramirez (Doe #16)	31
2/28/2005	Francisco Chavarria Zamora	47
2/28/2005	Vicente Montes-Medrano	25
3/1/2005	Leonardo Ruiz Bautista	22
3/20/2005	Angel Rafael Calixtro-Celaya	26
3/21/2005	Rolando Estrada Lamas	35
3/23/2005	Rigoberto Cifuentes Arredondo	33
3/27/2005	Abel Matias-Francisco (Doe #26)	25
4/9/2005	Heriberto Echeverria Caballero (Doe # 32)	18
4/11/2005	Jose Antonio Paredes Leon (Doe #35)	46
4/13/2005	Gualberto Felix Caro (Doe #38)	26
4/13/2005	Moises Rojas Laparra (Doe #39)	20
4/14/2005	Estela Tenorio (Doe #7)	21
4/21/2005	Jose O Benavidez (Doe #46)	32
4/22/2005	Isabel Cano Galvez (Doe #8)	17
4/23/2005	Agustin Maldonado Cazarez	21
5/4/2005	Margarita Guerra-Escalera (Doe #9)	42
5/14/2005	Juan De Jesus Rivera Cota	16
5/18/2005	Mario Alberto Esquivel Lopez	21

2005, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
5/21/2005	Marco Antonio Nunez Tapia	27
5/21/2005	Maria Trinidad Tamal Civil (Doe #10)	42
5/22/2005	Carlos Morales De Jesus (Doe #59)	27
5/22/2005	Luis Arturo Justo Tapia	30
5/23/2005	Dionisio Cristobal Candelario	40
5/23/2005	Melchor Barcenas Mariscal	37
5/23/2005	Jose Ramiro Nicolas Francisco	15
5/24/2005	Eduardo Zamarripa Olivas	35
5/25/2005	Sergio Martinez Ramirez (Doe #63)	37
5/26/2005	Eddie Humberto Villanueva Fuentes (Doe #65)	18
5/26/2005	Pablo Gonzalez-Villanueva (Doe #66)	20
5/27/2005	Patricia Morales Calderon	32
5/28/2005	Fernando Limas Garfias (Doe #68)	31
5/29/2005	Jose Refugio Perez Lopez (Doe #75)	53
5/29/2005	Jose Vizueth Gonzalez (Doe #69)	19
5/29/2005	Oscar Valdovinos Neri (Doe #70)	35
5/30/2005	Jorge Gomez Chacon (Doe #71)	38
5/26/2005	Manuel Perez De La Cruz	18
6/2/2005	Reynaldo Olivares Gonzalez (Doe #74)	45
6/12/2005	Jorge Carballo Orozco (Doe #77)	50
6/17/2005	Jose Luis Zacarias De La Cruz (Doe #81)	31
6/21/2005	Eugenio Rafael Cazares Aguilar (Doe #84)	38
6/22/2005	Jaime Zamora Venegas (Doe 84)	31
6/25/2005	Juan Carlos Rodriguez (Doe 87)	28
6/28/2005	Ruben Trejo Carrera	43
6/29/2005	Alejandro Palomar Campos (Doe #91)	33
6/30/2005	Rusbel Cano Lopez (Doe #92)	28
7/2/2005	Hector Carbajal Martinez	26
7/3/2005	Marco Antonio Gutierrez Roblero (Doe #94)	27
7/4/2005	Laura Rios Garcia	19
7/4/2005	Beatriz Adriana Sanchez Salazar	26
7/5/2005	Luis Miguel Morales Hernandez	24
7/6/2005	Natalia Noclas Martinez	21
7/7/2005	Julio Cesar Garcia-Ralda (Doe #96)	21
7/7/2005	Luz Maria Galindo Castrejon (Doe #17)	32
7/7/2005	Jose Eusebio Arias Arias	38
7/7/2005	Rene Mejia Andres (Doe #95)	19
7/8/2005	Ana Maria Rojas Fragoso	39
7/7/2005	Jose Gabriel Gaytan Vazquez	20
7/9/2005	Benjamin Melecio Ramirez	48
7/10/2005	Estela Bautista Vasquez	38
7/10/2005	Maria Del Carmen Martinez-Dominguez (Doe #20)	42
7/11/2005	Esteban Salazar Hernandez (Doe #103)	46
7/11/2005	Jesus Hernandez-Hernandez	23
7/12/2005	Lucia Gregorio Maldonado (Doe #22)	33

2005, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
7/12/2005	Irma Epiano Pasion (Doe #21)	29
7/12/2005	Jorge Javier Roldan	50
7/12/2005	Erica Rojas Garcia	20
7/13/2005	Patricio Perez Perez	32
7/13/2005	Eunice Diaz Velazquez	17
7/13/2005	Edilberta Anzures Rivera	21
7/13/2005	Delfina Coatl Osorio	23
7/13/2005	Gil Tovilla Morales (Doe #105)	42
7/13/2005	Moises Marquez Flores	39
7/14/2005	Rufina Antonieta Tantas Botiquin (Doe #24)	35
7/15/2005	Alejandro Hernandez Mata	24
7/15/2005	Juan Pablo Dominguez Borgez (Doe #106)	29
7/15/2005	Maria Rudy Aguilar Santiz	22
7/16/2005	Luis Arturo Martinez Lorenzana	12
7/16/2005	Isidrio Hernandez Navarro (Doe #108)	27
7/17/2005	Josefina Cruz Aguilar (Doe #27)	31
7/17/2005	Martin Resendis Panzo (Doe #116)	24
7/18/2005	Nelson Eduardo Agustín Raymundo (Doe #111)	15
7/18/2005	Alfanza Delfino Tapia	30
7/18/2005	Yesmin Francisca Diaz Perez	19
7/18/2005	Maria Velasco Bautista	24
7/18/2005	Jose Victor Calderon Morales	32
7/18/2005	Maximino Barriento Carajal (Doe #112)	27
7/19/2005	Rigoberto Garcia Romero	23
7/21/2005	Jose Alfredo Martinez Melendez (Doe #117)	35
7/23/2005	Lucrecia Dominguez Luna	35
7/26/2005	Jessica Elizabeth Jimenez	18
7/27/2005	Ernesto Perez Sanchez (Doe #123)	27
7/30/2005	Gerardo Moreno Cisneros	25
7/30/2005	Adan Perez Lopez (Doe #124)	24
7/31/2005	Roberto Ward Valenzuela (Doe #125)	24
7/31/2005	Jose Luis Estrada Morales (Doe #126)	50
7/31/2005	Carlos Armando Pena Cortez	30
8/1/2005	Juan Manuel Echevarria Linarte (Doe #127)	35
8/1/2005	Luis Alberto Juarez Perez (Doe #129)	16
8/1/2005	Juan Perez Santiago (Doe #128)	14
8/12/2005	Justino Menedez Ramos	25
8/16/2005	Jose Guadalupe Navarro Esquivel (Doe #134)	25
8/20/2005	Nicacio Perez Lopez (Doe #140)	43
8/20/2005	Claudeth Dilean Sanchez Urbina (Doe #34)	22
8/21/2005	Pedro Gonzalez Vargas (Doe #138)	46
8/28/2005	Reginaldo Mendoza Perez (Doe #145)	36
9/2/2005	Cristhian Rene Felix Arvalo (Doe #148)	19
9/3/2005	Jose Antonio Hernandez	UNKNOWN
9/6/2005	Jaime Vega Torres	54

2005, continued....

<u>Date Found</u>	<u>Name</u>	<u>Age</u>
9/10/2005	Gregorio Mariano Dolores	23
9/11/2005	Fausto Donaciano Bernal Lemus	51
9/11/2005	Martin Martinez Serrano (Doe #153)	29
9/19/2005	Baby Boy Arizaga	0
9/20/2005	Rafael Fidencio-Ortega	36
9/24/2005	Martin Garcia-Garcia	18
9/24/2005	Eduardo Corrales Vega (Doe #161)	18
9/26/2005	Ricardo Vazquez Aguilar (Doe #162)	47
9/26/2005	Luiz Carlos Barbosa (Doe #165)	36
9/30/2005	Eduardo Sanchez Gomez (Doe #159)	17
10/6/2005	Fulgencio Montalvo Mendez	28
10/13/2005	Eusebio Luna Mar (Doe #171)	37
10/18/2005	Raul Torres Flores (Doe #173)	31
11/3/2005	Constantino Vasquez Alvarez (Doe #180)	57
11/19/2005	Francisco Javier Bracamontes	32
11/21/2005	Ruben Garcia Lopez (Doe #191)	27
11/24/2005	Ismael Gamez Diaz (Doe #193)	24
12/1/2005	Jose Manuel Casimiro Juarez	37
12/4/2005	Francisca De La Cruz Lopez (Doe #45)	36
12/20/2005	Ismael R Silerio (Doe #202)	26

FOOTNOTES

- ¹ For further information about this study or BMI, please e-mail either BMI Coordinator Raquel Rubio-Goldsmith (rrg@u.arizona.edu) or BMI Senior Research Specialist M. Melissa McCormick (mmm3@email.arizona.edu), phone (520) 626-4987, fax (520) 621-7966, or write to Binational Migration Institute, Mexican American Studies & Research Center, University of Arizona, P.O. Box 210023, Tucson, Arizona 85721-0023.
- ² In 2000, Michael Pearson, former Executive Associate Commissioner for Field Operations at the Immigration and Naturalization Service (INS) testified that the new border enforcement strategy in the US southwest was based on the principle of “‘prevention through deterrence,’ that is, elevating the risk of apprehension to a level so high that prospective illegal entrants consider it futile to attempt to enter the U.S. illegally” (U.S. Senate Immigration Subcommittee Hearing: Enhancing Border Security, February 10, 2000).
- ³ A direct comparison of BMI totals for these years and US Border Patrol totals is not possible because the BMI figures include all cases handled by the PCMEO, irrespective of whether not the decedents perished in Pima County or other southern Arizona counties. The PCMEO frequently handles UBC cases from other counties, such as the 14 men who died near Yuma, Arizona in 2001, the subject of Luis Urrea’s best-selling book *The Devil’s Highway*.
- ⁴ While the BMI has not yet had the opportunity to specifically analyze PCMEO-based data for the number of unauthorized decedents who had resided in the U.S. and died while returning from a visit to Mexico, there are numerous examples of such deaths in the literature. See Nevins’ (2006:10) report on the death of 23-year-old Julio Cesar Gallegos who died on his way to back to his East Los Angeles home after visiting his elderly father in Mexico. Also see Marizco (7/19/05) for his report on Tomas Romero, age 36, an unauthorized Arizona resident who disappeared in the Arizona desert following an ill-fated effort to escort his mother and other family members into the U.S.
- ⁵ The BSI “target zone” is restricted to 45 counties along the US/Mexico border.
- ⁶ While the GAO’s 2006 analysis of BSI data indicates that only 71% (154) of all known UBC deaths in the Tucson Sector in 2005 (according to the *Tucson Citizen*, this figure is 216) actually occurred within Pima County’s boundaries, the PCMEO frequently handles UBC recovered bodies found in other Arizona counties. According to BMI’s analysis of PCMEO UBC autopsy reports for 2005, for instance, 93% (201) of all known UBC recovered bodies in the Tucson Sector for that year (216) were processed by the PCMEO.
- ⁷ Since 2002, as a part of a Baylor University program to collect mito-DNA from deceased, unidentified UBCs before they are interred, the PCMEO has been collecting tissue/DNA samples from remains before they are turned over to the Public Fiduciary in order to allow for the possibility of future identification.

⁸ While other studies have solicited data from medical examiners, e.g., Eschbach et al. (1999) and Sapkota et al. (2006), but they have either not actually read the reports for themselves, or, in the case of PCMEO records, reviewed all of the possible autopsy reports that involved a UBC that were previously unclassified as such by the medical examiner. Other studies that have relied, at least in part, on medical examiner data have also tended to impose narrow criteria on the data or have only analyzed autopsy data for a limited period of time or only one type of death, e.g., UBC deaths due to heat-exposure.

⁹ The *1994 Southwest Border Strategy*, which initiated “prevention-through-deterrence,” was primarily created by the then Border Patrol sector chief in El Paso, Silvestre Reyes, now a US Congressman. The 1994 plan specifically suggested that by forcing migrants into “more hostile terrain”... less suited to crossing and more suited for enforcement,” the US could reduce the number of unauthorized migrants coming into the country.

¹⁰ These border militarization efforts include have included “Operation Hold the Line” (implemented in 1994 in the Border Patrol’s El Paso Sector), “Operation Gatekeeper” (implemented in the San Diego Sector in 1994 and in El Centro in 1998), “Operation Rio Grande” (started in 1997 in McAllen and Laredo), and “Operation Safeguard” (implemented in Nogales in 1995 and Douglas and Tucson in 1999).

¹¹ Other anecdotal reports as well as findings from recent interviews conducted by Anna O’Leary (Fulbright scholar and University of Arizona adjunct professor at the Mexican American Studies & Research Center) of deported women indicate that some of the common reasons why unauthorized border crossers lack identification include assault while in transit as well as the Border Patrol not returning their documents after they have been detained.

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