**THE EMERGENCE OF LONE WOLF TERRORISM: PATTERNS OF BEHAVIOR AND IMPLICATIONS FOR INTERVENTION**

Brent Smith, Jeff Gruenewald, Paxton Roberts, and Kelly Damphousse

**ABSTRACT**

Purpose – *In this chapter, we examine several attributes of lone wolf terrorists and how their activities are temporally and geospatially patterned. In particular, we demonstrate how precursor behaviors and attack characteristics of lone wolves are similar and different compared to those of group-based terrorists.*

Design – *Based on data drawn from the American Terrorism Study (ATS), we examine 476 federal terrorism “indictees” linked to 264 incidents. Three types of loners are identified based on group affiliations and levels of assistance in preparing for and executing terrorist attacks. A series of analyses comparatively examine loners who had no assistance and those actors that did.*

Originality/Value – *Studies on lone wolf terrorism remain few and many are plagued by methodological conceptual limitations. The current study adds to this growing literature by relying on lone wolf terrorism data recently made available by the American Terrorism Study (ATS). Our findings are valuable for members of the law enforcement and intelligence communities responsible for the early detection and prevention of lone wolf terrorism in the United States.*

Findings – *The results of this study suggest that lone wolf terrorists are more educated and socially isolated than group-based actors. Lone wolves also engage in less precursor activities than group actors, but are willing to travel greater distances to prepare for and execute attacks. Explanations for why lone wolves are able to “survive” longer than terrorist groups by avoiding arrest may in part stem from their ability to temporally and geospatially position their planning and preparatory activities.*

**Keywords**: American terrorism; lone wolf; lone actor; precursor conduct; pre-incident indicators; leaderless resistance

**INTRODUCTION**

The emergence of lone wolf terrorism is one of the most frequently mentioned issues among those tasked with countering the threat of terrorism in America. Despite this, it is also one of the most frequently misunderstood concepts in the criminological literature, difficult to

define conceptually, and even more problematic to measure empirically. When compounded with the notion that lone wolves are especially difficult to detect, more likely to engage in “low expense and high success” targeting (Zierhoffer, 2014), and less likely to be caught using traditional counterintelligence methods than other types of terrorists (Bakker & de Graaf, 2011; Hewitt, 2014), the problem of “lone wolf” terrorism becomes even more exasperating.

Conceptually, “lone wolf” terrorism has gone by a number of different names, such as “lone avengers” (Stern, 2003) or “free-lance terrorists” (Hewitt, 2003). Like the term “terrorism,” both those who are responsible for responding to it and those who academically study it, have had a difficult time arriving at a consensus regarding what constitutes a “lone wolf.” Consequently, efforts to operationalize the concept of “lone wolf” have resulted in a wide variety of names or variables and multiple ways of measuring them. Not surprisingly, the

resulting literature reflects an impressive array of conflicting patterns and demographic traits that supposedly reveal the characteristics of “lone wolves.” Unfortunately, this growing body of literature is so absent of a consensus on defining the term that we have few methodologically rigorous pieces from which to even identify the nature and extent of the problem.

In the sections that follow, we will examine why the “lone wolf” strategy emerged, the origins of the concept of the “lone wolf,” and efforts to further refine the definition. We will also review recent empirical efforts to study the phenomenon and how these varying definitions of “lone wolf” have resulted in somewhat contradictory findings and patterns of behavior. We will also enter into this fray by analyzing data from a different source, the American Terrorism Study (ATS) to assess the nature and extent of “lone actor” terrorism in America as measured through the use of FBI “officially designated” acts of terrorism over the past thirty years or so. Finally,

we hope that our findings will provide some clarity to the often-confusing body of literature on

“lone wolf” terrorism.

**BACKGROUND ON THE ORIGINS OF LONE ACTOR TERRORISM**

Although “lone wolf” or lone actor terrorism by Al Qaeda adherents is thought to be one of the greatest threats to American security, and some may believe that this is a uniquely Al Qaeda phenomenon, the evolution of “lone wolf” or lone actor terrorism has an extensive history in the United States. In fact, it is difficult to fully appreciate the use of this tactic without understanding its evolution in American terrorism. The story begins several decades before the

9/11 attacks.

In the late 1950s, Fidel Castro instigated revolt in Cuba by employing a *rural revolutionary* model. Inspired by the Arab revolt against French rule in Algeria in 1954, Castro modeled his strategy from the rural movement employed initially by the National Liberation Front in Algeria. Castro’s rural revolutionary model had four major characteristics. First, it utilized a traditional military hierarchical structure composed of a traditional command and control structure. Second, this conventional guerilla army focused on the traditional military efforts to capture and hold terrain. In Castro’s case, this involved extortion and terrorism in addition to traditional military operations as his army obtained control of rural Cuba, while isolating the urban areas surrounding Havana. Third, as part of the effort to capture and hold terrain, Castro created “fixed compounds” such as military hospitals and training camps as he advanced on Havana. Finally, he took advantage of a system of national and international networking to finance, arm, and feed his growing military component.

With the successful overthrow of the Batista regime in 1959, Castro sought to import the model to other countries, primarily through what became known as the Tri-Continental Conferences (Sterling, 1981). However, when Che Guevara tried to implement the rural revolutionary model in Bolivia in 1967, he was quickly captured and his army disintegrated. The intelligence gathering capabilities of targeted governments had improved dramatically since the late 1950s and the use of fixed compounds and a hierarchical military structure resulted in abysmal failure. The extreme left adapted almost overnight with the introduction of an *urban cellular* model. In the Western Hemisphere, the publication of Carlos Marighella’s *Mini-Manual of the Urban Guerilla* in 1969 led to the wholesale adoption of the cellular approach by a wide range of American leftist extremists. Throughout the 1970s and 1980s, the strategy was

employed by the United Freedom Front, the Weather Underground, the SLA, the May 19th

Communist Organization, and scores of other violent leftist groups.

Extreme right wing groups in America, however, failed to learn the lessons of Che Guevara’s defeat in Bolivia. When they turned violent in the early 1980s, they immediately adopted a strategy similar to Castro’s old rural revolutionary model. Almost all of the right wing terrorist groups indicted under the FBI’s Counterterrorism Program in the 1980s employed fixed compounds, national networking, and a hierarchical structure to some extent (Smith, 1994).

From the anti-tax groups like the Arizona Patriots and the Sheriff’s Posse Commitatus to Christian Identity groups like the Aryan Nations and Covenant, Sword and Arm of the Lord, all sought to “capture and hold terrain” by initially creating local compounds, staking out townships, or mapping the boundaries of their proposed new “sovereign states.”

Similar to Guevara’s demise, within three years, the FBI had identified the locations of violent right wing compounds in the United States, indicted, and captured or killed the leading

members of over half a dozen groups. The so-called “war in ‘84” merely led to “arrests in ‘85”

as the FBI had one of its most productive counterterrorism efforts of all time. All but three of the leading figures of the extreme right had been convicted on various federal charges by 1987. To complete the campaign, U.S. Attorneys indicted Louis Beam, Richard Butler, and eight others associated with the Order, Aryan Nations, and the Covenant, Sword, and Arm of the Lord on seditious conspiracy charges in federal district court in Fort Smith, Arkansas. All eleven

indictees were acquitted of all charges in 1988. While the case itself is worthy of additional comment, for the purposes of this article, the lessons learned, particularly by Beam, are of particular interest.

Over the next four years, Beam concentrated on developing a strategy to minimize the civil and criminal liability of group leaders (Damphousse & Smith, 2004). The siege at Ruby Ridge, Idaho in 1992 provided the catalyst for Beam to advance his strategy (Kaplan, 1997). At a hastily called meeting of extreme right group leaders in Estes Park, Colorado that summer, he

publicly called for the implementation of “leaderless resistance” (Beam, 1992), an uncoordinated violence model that essentially bypassed the cellular approach adopted by leftists. Although some scholars have suggested that the “lone wolf” concept began in the post-9/11 era and is largely a byproduct of the emergence of Al Qaeda (e.g., Barnes, 2013), the term “lone wolf” emerged in the mid-1990s and was used to describe the threat of right wing terrorism in the United States. It became particularly prominent among counterterrorism officials soon after the Oklahoma City bombing in 1995, as many came to believe that McVeigh’s actions may have

represented an early example of leaderless resistance and lone wolf behavior.1 Although

leaderless resistance is the most famous of these uncoordinated violence models, it is not the only one.

The mid-1990s proved to be a turning point in the strategic planning of terrorist groups worldwide. In addition to the advocacy of leaderless resistance by the extreme right, environmental groups began using the newly created World Wide Web as both a recruiting tool and as a way to disseminate information about strategic targets (Joosse, 2007). Both the Earth Liberation Front and the Animal Liberation Front produced some of the most advanced websites on the Internet in the mid-1990s. The structure of the movement and their use of the Web allowed leading movement figures to indirectly identify potential targets to other members through articles and posts, while recording the successful “direct actions” made by members for supposedly informational purposes only.

Similarly, Islamic extremists, particularly those associated with Bin Laden’s Al Qaeda movement, used “fatwas” as a call to action that would make establishing criminal liability extremely difficult solely on the basis of the issued proclamation. Bin Laden’s famous 1998 fatwa to “kill the Americans” is the classic example:

On that basis, and in compliance with God's order, we issue the following fatwa to all Muslims: The ruling to kill the Americans and their allies -- civilians and military -- is an individual duty for every Muslim who can do it in any country in which it is possible to do it…. [E]very Muslim who believes in God and wishes to be rewarded to comply with God's order to kill the Americans and plunder their money wherever and whenever they find it (as cited in Ranstorp, 1998, p. 329).

Although Al Qaeda and subsequent Sunni extremist groups like ISIL represent a hybrid model in which components of the rural revolutionary model (creating an Islamic State through the

holding of terrain), the cellular model (e.g., the 9/11 attackers), and an uncoordinated violence model featuring lone wolves (e.g., the 2009 Nidal Hasan attack at Fort Hood, TX), the greatest concern among homeland security experts here is the United States in the last of these strategic

and tactical approaches (Borum, Fein, & Vossefuil, 2012; Gruenewald, Chermak, & Freilich,

2013b; Zierhoffer, 2014).

While our consideration of the origins of the “lone wolf” concept may be broader than other relevant studies, we believed it necessary to place the use of the term in the historical context of American terrorism. Doing so seems especially important, as a significant body of literature on lone actor terrorism has begun to emerge over the past decade. Although all of this literature has surely contributed to our understanding of the concept, the term nevertheless remains conceptually confusing and, consequently, difficult to measure with any degree of accuracy (Spaaij & Hamm, 2015). In the following section, we review highlights of some of this burgeoning literature.

**REVIEW OF THE LITERATURE**

In a recent review of research on lone wolf terrorism, Spaaij & Hamm (2015) recounted sixteen different monikers used for the term “lone wolf.” Some scholars have used these terms interchangeably though these seemingly synonymous terms may actually refer to conceptually unique forms of terrorist offending. A consensus definition of lone wolf terrorism continues to elude researchers; however, several conceptual dimensions of this phenomenon have begun to emerge. The first, and arguably least problematic, dimension of lone wolf terrorism is motivation. While Simon (2013) suggested that conventional (or non-ideological) criminals be included as one type of lone wolf (Simon, 2013), most other lone wolf definitions necessitate offenders to have political, social, or other ideological objectives. A second fuzzier conceptual dimension involves terrorists’ affiliations with groups that are organized by hierarchical command and control organizational structures. Past studies have varied in subtle but important

ways in regards to how group affiliation is measured. For example, Gruenewald et al., (2013a) and Pantucci (2011) conceptualize group affiliation as direct (or first-hand) interaction with other like-minded extremists, while others consider group influence in terms of autonomous decision- making, or the extant to which terrorists receive direction from group leaders (Borum et al.,

2012). According to Hewitt (2003) and other terrorism experts, lone wolves can be members of terrorist groups as long as they are not acting under the orders of terrorist leaders. The third key definitional dimension of lone wolf terrorism refers to the extent that terrorists operate alone. While measuring the “aloneness” of terrorists may seem straightforward, empirical considerations of offending arrangements can quickly become muddled. For instance, some definitional schema allow for multiple “lone actors” to be categorized as lone wolf “packs” or “isolated dyads” (Gill et al., 2014; Gruenewald et al., 2013a; Pantucci, 2011), while other researchers draw a harder line on the necessity of aloneness (Spaaij & Hamm, 2015). Relatedly, there remains conceptual ambiguity in regards to the specific activities terrorists must engage in alone to be considered a lone wolf. Borum et al. (2012) refer to offenders who initiate, plan, prepare for, and execute an attack without direct assistance from any other person as “solo” offenders, while those who receive direct assistance from one or two others in accomplishing these activities are considered “lone” offenders. It is possible, however, that terrorists may receive direct assistance in some stages of the terrorist cycle, while receiving no assistance in other stages. It remains unclear as to whether or not a terrorist who executes an attack by

himself can be considered a lone wolf if he had assistance in building the bomb. Addressing this question is an important next step in sorting through the conceptual ambiguities of lone wolf definitions.

Though the number of empirical studies of lone wolf terrorism remain relatively few, conceptual and methodological dilemmas have not kept all researchers from studying this important topic. Just as the number of academic studies of terrorism has grown exponentially, the number of lone wolf studies has also increased in the past few years. It is from this small but growing literature that offender and incident patterns of lone wolf terrorism begin to emerge. Below, we review some of these patterns, and then suggest how the current study fills some remaining gaps in the extant literature.

Several studies have concluded that lone wolf offending is on the rise. A study by Spaaij (2010), for instance, concluded that while lone wolf offending has remained stable in Europe, this type of terrorism had increased dramatically in the United States. Another earlier study found that unaffiliated individuals killed one in six terrorism victims in the United States, and when including the Oklahoma City bombing, the majority of terrorism-related deaths between

1978 and 2001 were attacks committed by “unaffiliated” individuals (Hewitt, 2003). Still other studies have shown that trends in lone wolf offending may be terrorism movement specific. Though lone wolf terrorism by Islamic extremists may be increasing after 9/11, far-right lone wolf terrorism may have peaked during the 1990s (Gruenewald et al., 2013a; see also Hewitt,

2003; Spaaij, 2010).

A social and demographic “profile” of lone wolves has also begun to emerge from recent studies. In regards to age, studies have found that lone wolves are typically in their mid to late

30s (Gill et al., 2014). Ages of offenders may vary, however, by the “type” of lone wolf. For example, far-right lone wolves who operate in small cells, or “wolf packs,” have been shown to be, on average, much younger (in their early 20s) (Gruenewald et al., 2013a). The disproportionate number of male offenders is generally one of the most consistent findings

across terrorism studies and extends to lone wolves as well. In fact, Gill et al. (2014) found that nearly 97% of the 119 lone wolves they examined were male. Though few studies have

measured terrorists’ educational attainment statuses, recent evidence indicates that approximately

75 percent of lone wolves have at least some college experience. Fourteen percent of lone wolves actually earned graduate degrees. Despite their relatively privileged social positions, lone wolves have often been described as socially “isolated,” “withdrawn,” “awkward,” and “inept” (Moskalenko & McCauley, 2011; Nijboer, 2012; Spaaij, 2010). As evidence, Gruenewald et al., (2013b) found that far-right “loners” were more likely to be divorced, separated, or widowed than other types of far-right terrorists. In addition, one study found that less than 25 percent of lone wolves had been married, relatively less compared to other types of terrorists operating around the world (Gill et al., 2014).

In addition to offenders’ background characteristics, we suggest that observing how terrorism event “cycles” are geospatially and temporally patterned is an important next step in research on lone wolf terrorism. This involves not only examining completed terrorist acts, but also the pre-incident activities of lone wolves and those planned but failed or foiled plots that never come to fruition. Gill et al. (2014) have already begun to examine several of these questions, which have important implications for the law enforcement communities responsible for preventing and investigating terrorism. Based on open-source data that they collected, Gill et al. (2014) observed several types of pre-incident activities that occurred within the planning and preparatory stages of terrorist cycles, such as recruitment and the assembly of explosive devices. They found that over half of these pre-incident activities occurred within one year of the attacks. Though they suggested that lone wolves were not necessarily impulsive, there was often very

little time between the lone wolves’ choices to use violence and the commission of attacks (Gill et al., 2014).

Much has been learned about lone wolves in the last several years, but limitations of available terrorism data continue to plague researchers (Silke, 2001). While the American Terrorism Study has maintained data on key terrorism activities for over 25 years, it has only been recently that adequate data have become available to conceptually distinguish between different forms of lone wolf terrorism. Based on these data, the remainder of this essay seeks to contribute to the growing lone wolf literature in several ways. First, a categorization scheme of

lone wolf offending is offered that considers the extent to which offenders received assistance for planning and preparing for attacks separately from assistance received in the execution of

attacks. Second, the ATS provides us access to the only known source of information on thousands of pre-incident activities associated with U.S. federal terrorism cases. Increasing our understanding of these precursor activities can potentially aid law enforcement in preventing seemingly elusive forms of terrorist offending. Finally, this study extends the work of Gill et al. (2014) by exploring temporal and geospatial patterns of lone wolf terrorists in comparison to group-based terrorist actors. In particular, the extent that lone wolves travel to commit their acts, engage in preparatory behaviors, and “survive” before being detected by law enforcement is examined.

**METHODOLOGY**

Data for our analysis of lone actor terrorism in the United States was drawn from the American Terrorism Study (ATS). The ATS was created in 1987 in collaboration with the FBI’s Terrorist Research and Analytical Center. At that time, the FBI provided the names and case

numbers of persons indicted in federal district courts from 1980-1987 as a result of an official FBI investigation for “terrorism or terrorism-related activities.” For the period 1988 to 2004, the FBI provided the names of terrorism defendants through sponsorship with either the U.S. House of Representatives Judiciary Subcommittee on Crime or the Senate Judiciary Committee. Since

2004, the name of terrorism defendants and their respective court case numbers have been provided by requests through Congressional representatives in the State of Arkansas.

Court documents for each case are retrieved through the federal Public Access to Court Electronic Records (PACER) system. If the information is not available on PACER, ATS personnel visit the district courts where the cases were filed, extract the needed documents, and copy them into the ATS Oracle relational database. Once the court documents are obtained, they are read and quantifiable variables are extracted and coded for entry into the database. ATS program managers then review the coded data for accuracy before final entry. Quantitative data on each case includes primarily: 1) demographic individual and group information, 2) legal information about each count/case and its outcome, and 3) any information related to the precursor conduct of the terrorists prior to commission of a terrorist incident. Information on the precursor data includes “time-stamping” the dates of these events as well as geo-coding the addresses where these events took place.

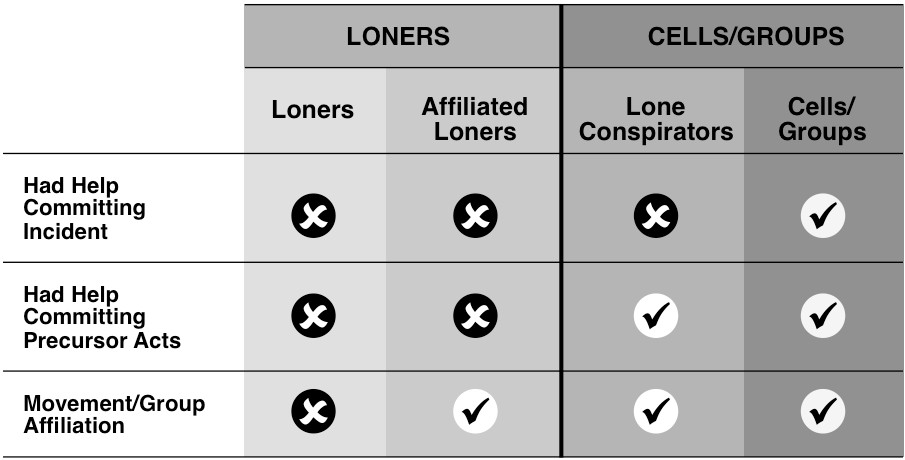
For the current analysis, we examined 476 discrete “indictees” who were linked to 264 prevented or completed acts of terrorism from 1980-present. These persons were indicted for over 3,000 federal counts and were associated with 1,788 known precursor behaviors at over

1,100 addresses. Building on the work of Pantucci (2011), Borum et al. (2012), and Gruenewald et al. (2013a), we chose to examine the patterns of behavior of these indictees by creating a *participatory typology* based on three basic elements: 1) was the person affiliated with a group

or movement; 2) did the individual have help committing any of the known precursor behaviors identified in court records; and 3) did the person have help committing the planned or completed incident. While we recognize that this is a rather simple approach to examining the issue of lone wolf behavior, we chose to do so because the three categories may be operationalized and readily quantified. As such, we hoped to avoid some of the methodological problems identified by

Spaaij and Hamm (2015).

Figure 1. Participatory Typology



As seen in Figure 1, the terrorists were categorized in the typology based on the extent to which they scored positive on each of these three operationalized variables. Persons who were not affiliated with a known terrorist group, had no help committing any of the precursor acts, and who had no help committing the terrorist incident were categorized as *loners*. An example in our sample would be Ted Kaczynski, the Unabomber. Persons where were affiliated with a group known to have been involved in terrorism in the United States, but who had no help in either preparing or carrying out the terrorism incident for which they were indicted were labeled as

*affiliated loners*. Buford Furrow, the Aryan Nations affiliate who opened fire in a Los Angeles

Jewish community center in 1999, is one example from our dataset who fits this categorization.

Those who were affiliated with a group and who had help preparing for the incident, but who carried out the terrorism incident by themselves were categorized as *lone conspirators*. While the term lone conspirator seems like an oxymoron (a conspiracy requires more than one person, otherwise it cannot meet the essential element for the legal requirements under this particular inchoate crime). In our situation, however, the term is quite appropriate when placed in the context of the typology. Timothy McVeigh, the Oklahoma City bomber who enlisted the aid of Terry Nichols, but who carried out the attack alone, fits this category. Finally, those who exhibited all of the characteristics (group affiliation, precursor help, and help committing the incident) were identified as *cells/groups*. Although all of the 9/11participants who actually carried out the attack died in the incident and were therefore never indicted, they serve as a good example of a cell/group.

Sample size has been a serious methodological problem in previous examinations of lone wolf terrorism. Therefore, for the current analysis, we have chosen to collapse our typology into two simple categories – those who had help and those who did not. *Loners* and *affiliated loners* fall into the first category, while *lone conspirators* and *cells/groups* fall into the category in

which the participant(s) had help. We compared these two groups (*those who had help* and *those who did not*) on five major issues: 1) successful completion of the terrorist incident, 2) volume

of precursor activity, 3) length of the planning cycle, 4) spatial variances, and 5) length of the individual terrorist’s “life cycle.”

**RESULTS**

Before presenting the results of our analyses on the issues above, some discussion of the characteristics of the sample is appropriate. As noted earlier, the sample includes 476 discrete individuals who were involved in 264 “officially designated” terrorism incidents in the United States. However, sixteen of these individuals were involved in multiple terrorism incidents as both a “loner” and as part of a “cell/group.” Consequently, for our analysis, these sixteen

persons are counted more than once, rendering an analysis of the behavior of 492 individuals. As previous scholars have noted, lone wolf activity is relatively rare, even among terrorists. Only eight percent (n=37) of the 492 persons committed terrorism incidents without any help in planning, preparing, or carrying out the incident.

Table 1. Demographics of Loners vs. Cells/Groups

Loners Cells/Groups

Perpetrators 8%

n=37

Gender 27% female\*\*

n=37

Average Age 34 years old n=35

College Education 89% attended college\*\*\* (n=28)

Marital Status 19% had been married\*\*\*

n=32

92%

n=455

12% female\*\*

n=455

36 years old n=391

59% attended college\*\*\*

n=324

56% had been married\*\*\*

n=294

\*\*p<.01, \*\*\*p<.001

On average, loners were only slightly younger than cell/group participants, 34 years compared to 36 years of age, respectively. This finding is remarkably consistent with other scholars (Gill et al., 2014; Gruenewald et al., 2013). However, our measure of age was “age at

indictment” and as we shall later see, loners participate in terrorism for much longer periods of time before arrest and indictment than do cell/group participants. If we had used “age at first preparatory conduct,” there is little doubt that loners would have been significantly younger than cell/group participants. We then compared loners to cell/group members on three other demographic traits: gender, education, and marital status. Loners were significantly different from cell/group participants on each of these variables. Loners were much less likely to be married (19% compared to 56%), a finding that is consistent with most of the lone wolf literature and which supports the notion that loners tend to be socially isolated (Nijboer, 2012). They also tended to be much better educated than cell/group participants. Nearly nine out of ten (89%) of the loners had attended college to some extent compared with 59% of cell/group members. Our demographic findings differed significantly from other scholars on one trait (Gill et al, 2014). Although terrorism is an overwhelmingly male “occupation,” we found that loners were comprised of a significantly larger percentage of females than were cell/group participants. Approximately one fourth of the loners in the sample were females, an interesting and singularly different finding from other scholars. This difference can be attributed to the number of females who fall into our *affiliated loner* category. These were predominately women who affiliated

with environmental extremist groups, but who prepared and committed “ecotage” activities with no evidence of help in preparing or committing the incident.

Table 2. Incident Completions by Loners vs. Cells/Groups

Attack Completed

Successfully

Attack Not

Completed Successfully

Loner Incidents

n=65 34% 66%

Cell/Group Incidents

n=199 44% 56%

All Incidents

n=264 42% 58%

p<.10

We examined whether the incident was successfully completed by comparing incidents where the attack was carried out and known objectives were met with those in which the incident failed and/or was foiled. Although we found a slight difference between the failure rates of

loners and cells/groups, these differences were not significant. This is in contrast to the recent work of Gill et al. (2014) who found that terrorists operating “without command and control links” were significantly more likely to successfully execute an attack than those operating under some form of command and control. It should be noted, however, that Gill and his colleagues’ sample includes both American and European terrorists, while our sample is limited to American terrorism.

Table 3. Precursor Activities Per Incident.

Precursor

Acts Incidents

Precursor Acts

Per Incident

Loner Incidents 162 65 2.49

Cell/Group Incidents 1,675 199 8.42

All Incidents 1,837 264 6.96

p<.001

Next, we examined the volume of precursor conduct specifically associated with the planning and preparation of an incident (Table 3). As one might expect, we found a significant difference between loners and cells/groups on this measure. Members of cells/groups engaged in over three times as many preparatory behaviors per incident than loners (8.4 compared to 2.5, respectively). For law enforcement planning, the lesser volume of activity prior to an incident is one of the major reasons lone wolf tactics have become of such concern (Hewitt, 2014). To our

knowledge, however, this is the first empirical evidence confirming this pattern. Also of particular note in Table 3 is the ratio of incidents to group size. Although not calculated explicitly, loners (who comprise only 8% of the sample) accounted for one-fourth of the terrorism incidents (65 of 264). This disproportionate number of incidents should be substantial cause for concern to counterterrorism officials. However, it should also be noted, that the fewer the number of precursor activities, the greater the likelihood that the planned incident is of lesser magnitude. This postulate is being tested currently with funding from the National Institute of

Justice.2

Table 4. Length of Planning Cycle for Attacks.

**Time Span from First Precursor Act to Incident**

Less than 3 months 3 months to 1 year Longer than 1 year

Loner Incidents

n=30 33% 33% 33%

Cell/Group Incidents

n=154 33% 31% 36%

All Incidents

n=184 33% 31% 36%

ns

We were also interested in assessing whether incidents involving loners required a shorter planning cycle. Since our earlier finding indicated that they engaged in substantially fewer precursor activities in preparation for an incident, it was logical to hypothesize that their

planning cycle would be shortened. Interestingly, this was not the case. Using increments of “less than three months,” “three months to one year,” and “longer than one year,” Table 4 demonstrates the almost identical patterns among the two groups relative to the overall temporal dimensions of the planning process.

Since temporal patterns may be shaped by spatial limitations or constraints, we wanted to compare the behavior of loners and cells/groups on two issues: 1) how far they lived from where they committed their preparatory activities, and 2) how far they lived from the selected terrorism incident location. These analyses were conducted through a series of “rose diagrams” in which the residences of the terrorists are placed in the center of a series of concentric circles representing distances from the residence. Then the location of either the precursor conduct or

the terrorist incident location (depending on what is being analyzed) is located on the rose diagram using both a distance measurement and an azimuth. This strategy renders a visual depiction of both the distances and direction from the independent to the dependent variable, in this case, residence locations to either the locations of precursor activities or locations of the incidents.3

Table 5. Linear Distances from Residences to Precursor Activities.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Loners | Cells/Groups | All Perpetrators |
| Average Distance | 454 miles | 444 miles | 445 miles |
| **Median Distance** | **170 miles** | **79 miles** | **88 miles** |
| Standard Deviation | 638 | 669 | 666 |
| Minimum Distance | 0 miles | 0 miles | 0 miles |
| Maximum Distance | 2,571 miles | 2,696 miles | 2,696 miles |

For the current analysis, the patterns are demonstrated numerically in Tables 5 and 6. To avoid the impact of outliers, the use of “median distances” are the most meaningful. Median distances indicate that half of the behaviors occurred closer than the median, while the other half occurred farther than the median distance. Table 5 reveals that loners, on average, committed their precursor conduct over twice as far from their places of residence than did members of

cells/groups (170 and 79 miles, respectively). Over two-fifths (41%) of the preparatory behavior committed by cell/group members occurred within thirty miles of their residences; less than one- fourth (23%) of loners committed preparatory acts within the same thirty-mile radius (table not shown).

Table 6. Linear Distances from Residences to Incidents.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Loners | Cells/Groups | All Perpetrators |
| Average Distance | 604 miles | 374 miles | 403 miles |
| **Median Distance** | **328 miles** | **118 miles** | **132 miles** |
| Standard Deviation | 685 | 543 | 567 |
| Minimum Distance | 0.57 miles | 0.32 miles | 0.32 miles |
| Maximum Distance | 2,563 miles | 2,696 miles | 2,696 miles |

The same pattern emerges when examining the distances between residence of the terrorist and incident location (see Table 6). Loners traveled, on average, almost three times further from their places of residence to strike targets than did the members of cells/groups (328 miles compared to 118 miles, respectively). An analysis of the concentric patterns associated with this data revealed that over one-third (37%) of cell/group members lived within thirty miles of the incident location compared with less than one-fifth (18%) of loners who lived that close to the target. Fifty-five percent of loners resided greater than 270 miles from the incident location compared with only 38% of cell/group members (table not shown). All of these patterns suggest that loners go to much greater lengths to disguise their activities and avoid detection than do members of cells or groups. In some ways, they defy the logic of time and space that suggests that greater distances require longer periods of time for planning, preparation, and execution. While that general premise appears to be true of cell/group affiliated terrorists, the pattern is not

evidenced in the behavior of loners – they travel greater distances to prepare for an incident and they live substantially greater distances from their chosen target locations, yet they exhibit a planning process that is of essentially the same length as terrorists operating under a command and control structure with multiple members. These behaviors, combined with their relative isolation (as evidenced by their lower marriage rates) and other indicators suggested by recent scholarship (Gill et al., 2014; Hewitt, 2014; Becker, 2014) all suggest that loners do indeed pose a difficult task for law enforcement early intervention.

Table 7. Length of Terrorist’s Life Cycle

**Percent of Terrorist Precursor Acts by Time Period**

Less than 3 months 3 months to 1 year Longer than 1 year

Loners

n=24 8% 13% 79%

Cells/Groups

n=279 22% 28% 50%

All Perpetrators

n=303 21% 26% 53%

p<.001

Given these findings, we wondered if the behaviors of loners enabled them to survive longer than members of cells/groups before being arrested or killed. The differences, reported in Table 7, were highly significant. Proportionally, nearly three times as many cell/group members were arrested within three months of their first precursor activity compared to loners (22% and

8%, respectively). Similarly, three-fifths (60%) of cell/group members in the dataset were arrested within one year of their first known precursor activity. In contrast, only about one-fifth (21%) of loners were arrested during the first year following engagement in precursor conduct. An analysis of “longevity” measured as a continuous variable ranging from date of first known

precursor act to date of indictment revealed even more astounding results. On average, cell/group participants “survived” about one year (median of 370 days) before being indicted, while loners had an average “lifespan” from first precursor to indictment (or arrest, if not captured prior to indictment) of over 1,900 days – a period of over five years. While some of these loners, exemplified by terrorists like Olympic Park and abortion clinic bomber Eric Rudolph, desisted from terrorists and lived “underground” for years after committing their last

act of terrorism (Vollers, 2006), their ability to avoid capture fuels the imagination of individuals radicalizing toward violence.

**CONCLUSIONS**

Despite a lack of consensus about what constitutes a “lone wolf,” our understanding of terrorism committed by loners has increased in the past several years. Like others, we suggest that a shared terminology needs to consider three key conceptual dimensions of lone actor terrorism, including ideological motive, group affiliation, and the degree to which terrorists receive assistance in preparing and executing terrorist attacks. It was based on these dimensions that this study sought to extend previous categorization schemes by distinguishing between lone actor terrorists who had no help preparing for attacks and executed them alone from those loners who received assistance preparing for attacks but executed them alone. As is often the case with terrorism research, our limited sample size precluded us from making statistical comparisons across each of our three types of lone wolf terrorism in relation to group-based terrorism. We did, however, statistically examine how cases involving lone wolves, which included both “loners’ and “unaffiliated loners” who had no help in preparing for or executing attacks, compared to all other terrorism cases involving multiple conspirators. The results of our study

suggested that the majority of lone wolves were predominately male, slightly younger, and significantly more educated than group-based terrorists. Our analysis also supported previous research by finding that lone wolves were, on average, more socially isolated than group-based actors. Unfortunately, the increased isolation of these terrorists is one of the most problematic symptoms of the lone wolf “syndrome” for law enforcement to counter. Fewer social ties conceivably reduce the opportunities for family, friends, employers, and others known to terrorists to detect suspicious behaviors, and opportunities for the public to “see something, say something” are reduced.

Also perplexing to the law enforcement and intelligence community is the assumption that that lone wolves engage in fewer precursor, or planning and preparatory, activities that also reduce opportunities for interdiction by law enforcement. With the exceptions of Gill et al. (2014) and the current study, there has been a lack of empirical research on the differences in precursor behaviors of lone wolves and group-based terrorists. Based on data made available by the American Terrorism Study, we not only confirmed conventional wisdom that lone wolves engage in less detectable precursor activities but we also found that these activities are similarly temporally spaced and increasingly geospatially distanced compared to group-based terrorism cases. As each precursor activity represents a potential opportunity for criminal and suspicious behaviors to be detected, lone wolves provide fewer and more distanced “dots” that can be connected by officials prior to terrorism attacks.

Although our findings support the emerging narrative that depicts lone wolves as a formidable challenge and significant threat to homeland security, it is also important to

remember that no terrorist operates within a social vacuum. Lone wolves are unique from group- based terrorists in several ways; however, they do plan, prepare, and may even solicit direct and

virtual forms of assistance prior to committing their crimes. It is clear that lone wolves tend to be more isolated than other terrorists in regards to personal and intimate relationships, but these individuals are often employed, attending classes, members of the military, or members of online (or Internet) communities. It is up to terrorism researchers to learn more about the patterned nature of criminal and non-criminal precursor activities of lone wolves, while also being careful not to assume homogeneity in precursor activities across loners, unaffiliated loners, lone conspirators, and group-based actors. Ideally, members of the law enforcement and intelligence communities will ultimately be able to use evidence-based findings such as the ones presented in this study to inform terrorism prevention policies and practices

**REFERENCES**

Bakker, E., & de Graaf, B. (2011). Preventing lone wolf terrorism: Some CT approaches.

*Perspectives on Terrorism, 5*(5-6), Retrieved from<http://www.terrorismanalysts.com/pt/index.php/pot/article/view/preventing-lone-> wolf/html

Barnes, B. (2012). Confronting the one-man wolf pack: Adapting law enforcement and prosecution responses to the threat of lone wolf terrorism. *Boston University Law Review*,

*92*, 1613–1662.

Beam, L. 1992. Leaderless resistance. *The Seditionist*, *12*. Retrieved from<http://www.louisbeam.com/leaderless.htm>

Becker, M. (2014). Explaining lone wolf target selection in the United States. *Studies in Conflict*

*& Terrorism, 37*(11), 959-978.

Borum, R., Fein, R., & Vossekuil, B. (2012). A dimensional approach to analyzing lone offender terrorism. *Aggression and Violent Behavior, 17*, 389-396.

Damphousse, K., & Smith, B. (2004). Terrorism and empirical testing: Using indictment data to assess changes in terrorist conduct. In M. Deflem (Ed.), *Terrorism and counterterrorism: Criminological perspectives (pp.75-90)*. New York: Elsevier.

Gill, P., Horgan, J., & Deckert, P. (2014). Bombing alone: Tracing the motivations and antecedent behaviors of lone-actor terrorists. *Journal of Forensic Sciences, 59*(2), 425-

435.

Gruenewald, J., Chermak, S., & Freilich, J.D. (2013b). Distinguishing “loner” attacks from other domestic extremist violence: A comparison of homicide incident and offender characteristics. *Criminology & Public Policy, 12*(1), 65-91.

Hewitt, C. (2003). *Understanding terrorism in America: From the Klan to Al Qaeda*. New York: Routledge.

Hewitt, C. (2014). Law enforcement tactics and their effectiveness in dealing with American terrorism: Organizations, autonomous cells, and lone wolves. *Terrorism & Political Violence, 26*(1), 58-68.

Joosse, P. (2007). Leaderless resistance and ideological inclusion: The case of the Earth

Liberation Front. *Terrorism & Political Violence, 19*(3), 351-368.

Moskalenko, S., & McCauley, C. (2011). The psychology of lone-wolf terrorism. *Counseling*

*Psychology Quarterly*, 24, 115–126.

Nijboer, M. (2012). A review of lone wolf terrorism: The need for a different approach. *Social Cosmos*, *3*. Retrieved from [http://socialcosmos.](http://socialcosmos/) library.uu.nl/index.php/sc/article/viewFile/43/38

Pantucci, R. (2011). *A typology of lone wolves: Preliminary analysis of lone Islamist terrorists.*

*United Kingdom*. The International Centre for the Study of Radicalisation and Political Violence. Retrieved from<http://www.trackingterrorism.org/sites/default/files/chatter/1302002992ICSRPaper_ATy>pologyofLoneWolves\_Pantucci.pdf

Ranstorp, M. (1998). Interpreting the broader context and meaning of Bin-Laden’s fatwa. *Studies in Conflict & Terrorism, 21*(4), 321-330.

Silke, A. (2001). The devil you know: Continuing problems with research on terrorism.

Terrorism & Political Violence, 13(4), 1-14.

Simon, J.D. (2013). *Lone wolf terrorism: Understanding the growing threat*. Amherst, NY: Prometheus Books.

Smith, B. (1994). *Terrorism in America: Pipe bombs and pipe dreams*. Albany, NY: State

University of New York Press.

Spaaij, R. (2010). The enigma of lone wolf terrorism: An assessment. *Studies in Conflict & Terrorism*, 33, 854–870.

Spaaij, R., & Hamm, M.S. (2015). Key issues and research agendas in lone wolf terrorism.

*Studies in Conflict & Terrorism, 38*(3), 167-178.

Sterling, C. (1981). *The terror network: The secret war of international terrorism*. New York: Holt, Rinehart, and Winston.

Stern, J. (2003). *Terror in the name of God: Why religious militants kill*. New York: Harper

Collins.

Vollers, M. (2006). *Lone wolf: Eric Rudolph and the legacy of American terror*. New York: Harper Perennial.

**NOTES**

1 Personal conversations and meetings in 1995-96 with members of JTTF’s in different FBI field offices following the bombing of the Murrah Federal Building. One of the authors of this article was criticized extensively in an article by William Pierce on his website following the author’s testimony before the House Judiciary Subcommittee on Crime after the Oklahoma City

Bombing. Concerns that mention of the author by name might be suggestive of a target for a lone

wolf resulted in increased security by law enforcement – the point being that the term “lone wolf” was used extensively even prior to Al Qaeda’s emergence as a global threat.

2 Sequencing Terrorists’ Precursor Behaviors: A Crime-Specific Analysis. National Institute of

Justice, Grant # 2013-ZA-BX-0001.

3 The rose diagrams are not show here, but examples may be seen in some of our preliminary work published in the NIJ Journal, Issue Number 260, pp. 2-6.