The Use of Drones By Gangs To Smuggle Contraband into Correctional Institutions

by

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INTRODUCTION

The advent of using unmanned aircraft, or drones, to smuggle contraband into prisons and jails is some would say — predictable. It was predictable that the rise of new, affordable, easily acquired technology such as that represented by drones today would be used at some point for anti-social purposes. It was not a surprise to the NGCRC that a new type of crime would emerge from the use of drones and that gangs and security threat groups (STG's) would be involved — simply because there is longstanding evidence that gangs/STG's are highly active in the various prison "hustles" or underground economies in prison life today. Gangs and STG's are at the top of the hierarchy ladder in terms of status and power pyramids in prisons throughout the world today.

METHODOLOGY

The methodology for this study represented a comprehensive review of the literature on gangs, drones, and correctional institutions. It was not helpful to review what is a traditional source of public information for criminal justice research — that one place where most criminologists often start their efforts to identify major contributions over time to the literature — the National Criminal Justice Reference Service (NCJRS). There was not much if anything available on drones. But there obviously are some types of literature that are useful contributions including news media and court records.

In addition to public sources of information such as those cited in this report, we have also had the benefit of having access to the NGCRC studies relating to this topical focus. The proprietary NGCRC research referred to in this report therefore includes separate surveys of prisons and jails in recent years that had a specific a focus on drones.

For purposes of definition, the term drone will be treated as synonymous with unmanned aircraft system. Drones of concern here can fly autonomously or can be piloted remotely. They can be used as expendable for the mission, or recoverable for ongoing usage.

For purposes of definition, a gang is any group of three or more persons who recurrently commit crime. So the term "gangs" includes security threat groups (STG's) and security risk groups (SRG's), and disruptive groups, as gangs are called in corrections. The term also includes

outlaw motorcycle gangs (OMG's). The term also includes hate groups and terrorist groups.

WHAT KIND OF RACKETS DO GANGS/STGs RUN BEHIND BARS?

Smuggling goods into a correctional institution involves some of the most lucrative of all of the illicit income-motivated crimes or inmate rackets. Drone smuggling involves drugs and cell phones — two top earners for gangs/STGs. Based on the way prisons and jails function it is not reasonable to believe that anyone could effectively carry out such an activity as drone smuggling without the knowledge of the gangs/STGs operating in the same facility. It is reasonable to argue that if money is to be made in any inmate racket, gangs are probably going to be involved.

To develop more information about the extent to which gangs and STG's seek to control the economic rackets inside American correctional facilities, the NGCRC developed and implemented a special national survey research project. A random sample of prisons and jails were identified in 2011 and contacted by mail. The first point of contact was with the superintendent or warden. In some cases where we did not receive a response, we would contact someone lower in the chain of command that we might know from the NGCRC mailing list. By spring of 2012, we had received N = 148 completed surveys representing 48 of the 50 states.

The survey asked "what kind of economic rackets do gangs try to operate or control in your facility"? Here are the results in the order of their reported severity.

Percentage	Type of Inmate Racket
66.9%	gambling
60.8%	drugs
60.1%	food
57.4%	protection
56.1%	extortion
29.7%	loan sharking
28.4%	clothing
16.9%	sex

To help interpret here, 66.9 percent of the prisons and jails are reporting that gangs try to operate or control the gambling rackets operated by inmates. In over half (57.4%) of the prisons and jails, gangs try to operate or control the protection rackets operated by inmates. Gambling, drugs, food and protection/extortion are the main interests of gangs. Only 16.9 percent of the prisons and jails reported gangs trying to control or operate the sex rackets behind bars.

The NGCRC's 2012 prison gang survey also included the question "in your opinion, have gangs/STG's tended to result in more cell phones being smuggled in for use by inmates in your facility"? Some 47.2 percent of the respondents said "yes". Half of the respondents (52.8%) indicated "no" that gangs/STG's have not tended to result in more cell phones being smuggled into their jail or prison.

So, from the large scale national survey of prison gang information tied to inmate rackets, we are seeing that gangs and STG's try to operate or control rackets involving drugs in 60.8 percent of U.S. prisons. We will examine gang/STG involvement with drone smuggling in this

report. Sometimes it is easy to understand that the drone crime is gang/STG-related — such as in what is now called the Fort Dix case. In the Fort Dix case four were arrested for the group crime. A group of three or more that recurrently commits crime is the very definition of gang, and if it exists or operates inside a prison then it is also an STG.

OCTOBER, 2015: FAA REQUIRES HOBBYISTS TO REGISTER THEIR DRONES

In October of 2015 the Federal Aviation Administration (FAA) began an initiative that would require hobbyists to register their drones. The purpose of this initiative was in support of the larger public good that is accomplished when the FAA responds to fears from pilots and others who have over the years complained about near misses in terms of mid-air collisions with drones. Anti-social uses of the drone technology would quickly appear, suggesting the FAA was right on target for this timely initiative.

Even prior to October of 2015, the FAA did require commercial drone operators to register their drones and to have a drone flying permit.

The October 2015 plan involved bringing together the stakeholders: drone companies, drone advocacy groups, and aviation organizations. By consulting with those who constitute the drone community it was the goal to then determine what kinds of drones would need to be registered. So on December 21, 2015 the FAA's online registration system went into effect. The difference between a toy and the kind of drone that needs to be registered is an issue of the weight of the drone. If the drone weighs more than .055 pounds (250 grams), then it is not a toy and needs to be registered.

So anything under .055 pounds (250 grams) is a toy and exempt? Well, not necessarily a toy, is it exempt, yes. But American marketing ingenuity would quickly pick up on this weight factor and by October 2019 a Chinese company began offering the Mavic Mini drone weighing in at 249 grams, prices starting about $400 each, it provides a half hour of operating flight time. So the Mavic Mini is under the FAA weight limit and is therefore in theory exempt, but it is not a toy, it has many capabilities.

There is also an upper limit on the FAA weight of a drone, it cannot be more than 55 pounds, because if over 55 pounds in weight it is technically regulated as a large unmanned aerial system (UAS).

Law enforcement anywhere in the USA have the right to ask drone operators to show their proof of passing the FAA's drone knowledge test and to ask for their FAA current registration as a drone pilot. Lots of drone insurance companies exist serving all the sectors, hobbyists, international users, business users, wedding and event specialists, etc — so ask for proof of drone insurance too. Municipalities can in the future be expected to require drone insurance at the local level. Interesting as well, there is no offense we could discover for operating a drone under the influence of drugs or alcohol.

NEW PROBLEM OF GANGS/STGs USING DRONES IS ON THE RISE

The use of drones by gangs and others to smuggle in contraband is on the increase in American corrections and most other countries as well. There have been a number of reported incidents in recent years, enough so to justify having correctional officers themselves use their own drones for added security. One of the first reported cases occurred in 2013 with the use of a

remote control helicopter to smuggle in contraband to the Calhoun State Prison, in Morgan, Georgia where the first smuggler drone was actually captured in 2014 (Hurt, 2019).

How large of a problem is the use of drones to smuggle contraband into American prisons? One of the best sources of information on this comes from the State of Georgia, where they have recognized that "technology frequently gets ahead of the law", and had the good organizational skills in their state corrections agency to create a unit that can deal with new technology like drones. According to Sean Ferguson, New Technology Project Manager for the Georgia Department of Corrections, when asked in 2019, apparently his agency reported spotting 300 drones over state prisons in the last year –- about 25 a month on average (Hurt, 2019). They captured only N = 7 of the drones from the 300 drone sightings in the last year (Hurt, 2019).

Sean Ferguson has also said that "there is not a prison not fighting this issue in the country and if they say they are not facing it, they are just not admitting to it" (Vice, 2018). So like the problem of "gang denial" where early in the history of gang/STG problems in America, some state correctional agencies just outright denied they had any kind of a gang problem. Virginia was well known for this, as was California. It is probably reasonable to believe, just as gang/STG denial can happen, that drone denial is probably also a distinct possibility today.

CHRONOLOGY OF PRISON DRONE SMUGGLING EVENTS

We have provided, here, a chronology of known prison drone smuggling events:

*** November 21, 2013: First known drone smuggling attempt fails at Calhoun State Prison, in Morgan, Georgia (Perez, 2013). Four persons were arrested (Marc Lee Circle, Aaron Clint Foster, Angel Omega Thomas, Donavan Aaron Johnson) and detained in Calhoun county jail . Hexacopter (a drone with 6 rotors) payload contained about two pounds of tobacco and cell phones.

*** April 21, 2014: Lee Correctional Institution located in Bishopville, South Carolina; failed prison drone smuggling surfaces when a crashed drone is found in bushes by the fence containing a payload of cellphones, marijuana, and tobacco (Cahill, 2014). By January 20, 2015 Brenton Lee Doyle had been arrested, charged, and pled guilty, sentenced to serve 15 years in prison — 10 years for trying to bring in contraband, 5 years for possession of marijuana (Kinnard, 2015).

*** July 29, 2015: In the early afternoon when inmates were in the yard, a drone was used to drop a payload of drugs into the north prison yard at the Mansfield Correctional Institution, in Mansfield, Ohio, the problem was that while the delivery was intended for the Gangster Disciples, their rivals, the Heartless Felons actually intercepted the payload. A struggle ensured. Nine inmates went to the hole.

*** Aug., 2015: Keith Brian Russell (30) and Thaddeus Casimir Shortz (25) arrested near the Western Correctional Institution in Cumberland, MD. Found drone and payload in their vehicle. They were trying to smuggle payload of porno DVD's, tobacco, and synthetic marijuana to their inside connection — Charles Westley Brooks (43) who was already serving a life sentence. All 3 indicted on 9-22-2015. Prison sentences in 2016: Brooks - 13 years; Russell - 5 years; Shortz - 13 years.

*** August 9, 2016: Drone smuggling incident at the HMP Wandsworth prison in London, England; three offenders arrested - Jamie Duggan (30), Kye Hardy-King (28), Craig

Kearney (30).

*** Aug. 17, 2017: Two correctional officers at Handlon Correctional Facility in Ionia, Michigan at about 0400 hears the tell tale sound of drone rotors; help is summoned; they seize the drone and two payloads of cellphones and drugs; three suspects are arrested.

*** Jan. 14, 2018 thru Feb. 26, 2018: Drone drop at the Lincoln Correctional Center, in Lincoln, Nebraska, resulting in the felony conviction of its operator, Robert M. Kinser (38). Drone wreckage discovered by work detail inmate, contained drone and two bags in the payload.

*** March 19, 2018: Drone and payload seized at the Kern Valley State Prison, in Delano, California. High quality drone: a Phantom 3 equipped with a modified payload release mechanism. Payload contained 180 grams of heroin, 69 grams of meth, phones, chargers, SIM cards, headphones, tweezers and hacksaw blades.

*** March 29, 2018: Eric Lee Brown (35) is arrested for attempting to drone smuggle 294 grams of marijuana into the Autry State Prison in Pelham, Georgia; becoming the first federal conviction under the FAA's drone registration law.

*** July 26, 2018 o'dark thirty first of a series of drone landings inside the Fort Dix federal prison in Burlington County, New Jersey. First load contained: 35 syringes, 15 cellphones, 30 phone chargers, drugs and pills, and a box of *Just for Men* hair coloring. According to the arrests made in March, 2020, additional flights would occur on April 16, Sept. 26, Oct. 1, and Nov. 20 of 2019.

*** October 30, 2018 another Fort Dix drop. Drone payload and other evidence seized.

*** Spring, 2019 the drone bombs go off in Washington Township, Pennsylvania in the Muzzicato case.

*** Aug. 26, 2019: Drone and contraband cargo seized near Telfair State Prison, McRae-Helena, Georgia; Three charged: George Lo (27); Nicholas Lo (24); and Cheikh Hassane Toure (24) aka "Hassan". Payload included: digital scale, earbuds, 14 cell phones, tobacco, and firearms ammunition. Drone package: Storm Drone 4 (popular choice for starters), AT95 UAS controller, Spektrum video monitor, and a headset.

*** Oct. 26, 2019: Drone drop of drugs at the Quinte Region Detention Centre, Napanee, Ontario; two subsequently arrested - Andrew Ubdergrove (23) and Keisha Halliday (23).

*** March, 2020, two persons were charged with using a drone for drug drops to inmates at the Fort Dix federal prison in Burlington County, New Jersey. Nicolo Denichilo and Adrian Goolcharran faced six years each. Importantly, Denichilo's fingerprint was found on a plastic bag in the shipment and Goolcharran's DNA was recovered from a piece of electrical tape found in the shipment. Overall it was estimated that these two alone smuggled "marijuana, steroids, more than 160 cellphones, 150 SIM cards, 74 cellphone batteries, 35 syringes and two metal saws" (Vincent, 2020).

*** March 24, 2020, 4:00a.m., a drone delivers marijuana and cigars to a Kingston prison in Ontario, Canada; in June, 2020 Len Aragon (30) of Toronto, Rachel Chen (26) of Mississauga, Marc Fontaine (39) and Nachoua-Hiba Kord (23) are charged in the drone plot to smuggle drugs.

*** April 11, 2020: three arrested (Patricia Lynn Phillips, 38; MacArthur Williams Jr., 28, and Erica Jasmin Mensah, 23) trying to drone smuggle marijuana into the Hays State Prison, in Trion, Georgia.

*** June, 2020, in Jacksonville, North Carolina, Jacksonville Police Department detected

person illegally flying a drone in proximity to the Onslow County Courthouse and Detention Facility.

*** June, 2020, a drone losses power and lands prematurely the Long Bay Prison in Sydney, Australia. Its cargo: buprenorphine, a SIM card, and electronics. Day after the drone was recovered, the inmates rioted, it was known that inmates were having a harder time getting drugs smuggled in via traditional sources like visitors (which got cut down under Covid-19 regulations) (Spires, 2020).

*** August, 2020 a drone got snagged in a security net, it was caught delivering marijuana, lighters, cell phone and phone chargers at the Central Mississippi Correctional Facility, a state prison, in Pearl, Mississippi, two were arrested by tracing the flight path (Gallant, 2020).

*** Sept. 24, 2020: Drone lands and is recovered with cargo at the Collins Bay Institutions, Kingston, Ontario. Contained illegal drugs valued at $89,185 in terms of the contraband value inside a correctional institution.

*** Nov. 9, 2020: US-Mexico cross border drone smuggling incident; 25 pounds of methamphetamine seized by the Yuma County Narcotics Task Force.

*** Nov. 13, 2020: Drone with payload and guns seized from the offenders arrested in the drone smuggling incident in Newberry, South Carolina. Payload contained 2 ounces of meth, 23 ounces of marijuana, suboxone film, 10 cellphones, and extra batteries for the drone itself.

Capturing a drone can lead to pay offs like making arrests. From the drone evidence you can get finger prints. Some may have digital history that can be downloaded including pictures, as there have been offender drone operators caught this way, they featured themselves in photos made from the drone and remained in the digital storage history of the drone or its GPS memory. Sometimes you can just trace the flight path of the drone as happened in the arrest of John Ross and Joshua Corban who were charged in early September of 2020 for the August 2020 drone that got captured.

JAIL SURVEY SHOWS LOW LEVEL OF ARRESTS FOR USE OF DRONES AND REMOTE CONTROL VEHICLES IN CRIME

A survey of American county jails in 2019 by the NGCRC included a series of questions focused on different aspects of a new type of crime in which the criminal offender uses drones and other types of remotely controlled vehicles. Note that the focus here is not the jail as a target of drone attacks, but rather the jail containing inmates who may have come to the attention of the criminal justice system for using drones in any criminal pursuit, gang or not. So the aspect being investigated in the NGCRC jail survey was whether many people are being charged for offenses involving the use of drones. And few are apparently.

The survey asked, “do you have inmates in your facility whose crimes involved the use of any of these remotely controlled or piloted vehicles/robots”. Only 1.9 percent (N = 5) of the jail respondents indicated that “yes” they are holding inmates in their jail whose crimes involved the use of remotely controlled or piloted vehicles/robots. So, the vast majority of respondents (98.1%, N = 252) report no such inmates now in custody for these kinds of new high-tech crimes.

Among the few inmates being held for such crimes, N = 3 used air/aircraft and balloon vehicles that were remote controlled. Some N = 5 used ground/wheeled, tracked and/or leg vehicles. Only one case involved the use of a water/floating or submersible vehicle.

PRISON SURVEY SHOWS OVER A THIRD OF STATE PRISONS NOW REPORT DRONE SMUGGLING CONTRABAND INCIDENTS

The NGCRC's 2020 prison survey asked "have drones been used at your facility to smuggle contraband (e.g., cell phones and drugs) into the facility?". As shown here, one of the newest challenges to correctional security is dealing with drones in the modern age of crime. The only other research in the world about the use of drones for smuggling contraband into correctional facilities was the 2019 NGCRC survey of American jails. Prisons are a lot different than county jails in terms of the nature of their physical plants, most prisons have an open yard of some kind, and areas inside a fenced or walled perimeter where inmates have access for work or recreation. Most jails do not have open air exercise yards.

The results of the prison survey show that over a third of all prison respondents (37.0%) now report that drones have been used at their facility to smuggle in contraband such as cell phones and drugs. About two-thirds (63%) of the respondents did not report such drone use.

Another important finding, new to this line of research on adult state corrections, is the high level of facilities reporting that have drones been used at their facility to smuggle contraband (e.g., cell phones and drugs) into the facility. Over a third of all prison respondents (37.0%) report that drones have been used to try to smuggle in contraband. The prediction would be that eventually this smuggling technique will be used to smuggle in firearms that could be used in a mass escape or hostage taking event, or as in central and south American countries the smuggled guns are used to up the ante in ongoing gang conflicts behind the walls.

FINANCIAL AND ECONOMIC FACTORS

The profit value of the payload being transported in a typical drone smuggling operation is estimated to yield $6,000 dollars in profit (Lecher, 2020). A package of cigarettes for example can be purchased for $2.50 a package and easily sold for $50.00 inside the prison inmate economy where today most prisons prohibit the use and possession of tobacco products. In prison, inmate culture has always fostered the hustle of commissary items, where there is a stiff increased price — its to be expected in the inmate economy. Inmates are used to a system where when they "borrow" a $1.00 candy bar, they are expected to pay it back with $2.00 in candy bars.

There is also the matter of actual "street value" and "prison environment value" of the items of contraband seized. Prison prices will always be higher than street prices. It is not unusual for a typical drone smuggling payload to be worth $90,000 in terms of its institutional value (Yasvinski, 2020), that was what the payload was worth that landed at the Collins Bay Institution in Kingston, Ontario.

One drone smuggler operating in Maryland reported told investigators that drone smuggling was a "goldmine", he made $4,000 every time he dropped a payload.

DRONE REPORTINGS IN THE FEDERAL BUREAU OF PRISONS

There are fifty state correctional systems, all are different, they rarely interface and like the gang problem itself there are no state level or federal level data reporting standards they need to comply with. Thus, information on gangs and STGs is not systematically collected and reported to the public. The same is true with regard to drones used for smuggling and other anti-social

uses that could threaten the safety and security of a correctional facility. Some states are more transparent than others, but when no regulatory authority requires the reporting of statistical trends, we will never see any statistical trends on any problem of public interest.

The Federal Bureau of Prisons (BOP) is different with regard to drones at least. This is true because of the Office of Inspector General (OIG), and its watchdog authority. On Sept. 15, 2020 the OIG released a detailed report on efforts to protect the BOP against threats posed by drones (OIG, 2020). The report released the only time-series data about drone sightings known to exist. We will review two tables of information from the OIG (2020) report.

Table 1 provides the data for number of reported drone incidents at BOP federal facilities from March 2015, until December 2019. The BOP's TruIntel system contained incident data on 85 reported drone incidents which are shown in Table 1 to start with the first known drone incident in 2015. There was little activity through 2017. But a dramatic rise occurs in 2018, and it more than doubles in 2019. There is only conclusion from this data: that drone incidents are now a major concern and represent a genuine threat to the main BOP correctional facilities. In the most recent calendar year for which drone incident information was collected and reported, 2019, it is shown in Table 1 that there were N = 57 separate such drone incidents.

Table 1: Number of Reported Drone Incidents at BOP Federal Facilities from March 2015, until December 2019.

Time Period	Number Drone Incidents
2015	1
2016	0
2017	2
2018	23
2019	57

Source: Office of Inspector General (2020)

Table 2 provides the data for number of reported drone incidents at BOP contract facilities during the same time period. Contract facilities. This shows another N = 47 drone incidents were reported for BOP contract facilities during the same time frame. In the most recent calendar year for which drone incident information was collected and reported, 2019, it is shown in Table 2 that there were N = 25 separate such drone incidents for the BOP contract facilities.

Table 2: Number of Reported Drone Incidents at BOP Contract Facilities from March 2015, until December 2019.

Time Period	Number Drone Incidents
2015	1
2016	2
2017	11
2018	8
2019	25

Source: Office of Inspector General (2020)

The OIG report was clear in assuming that the number of drone incidents reported was probably an underestimate of the actual scope of the problem. So we are left with the conclusion that from the limited amount of hard data available, and that data covers only the federal prison system, there is little doubt that a serious problem exists. Secondly, the problem appears to warrant serious consideration because of the extent to which it might be increasing over time. The other problem is that the BOP data is based on what is called the TruIntel system, an intelligence reporting and monitoring system for corrections maintained by the federal Bureau of Prisons (BOP). We would recommend the astute reader review the OIG report on BOP contraband interdiction efforts (OIG, 2016).

Georgia is the only state to have released any significant information about number of drone sightings the equivalent of a drone incident. Georgia's DOC director Clay Nix was attributed with estimating that there were 300 drone sightings at Georgia prisons in the year 2018. But the estimate referred to only two facilities, both of which were taking part in a test of drone detection services.

California has reported some statistics about the problem. Recall, it was California that for a long time admitted to a gang density level of from only 3% to 6% by using a different language to define the problem.

In a thorough analysis of the BOP's ability to target harden against smuggling contraband into the BOP facilities, it was very clear from the report that the TruIntel system is basically a database used by BOP staff to report almost everything that goes on in their facilities. Importantly, the OIG (2016) report concludes that the BOP's TruIntel database system was not the ideal tracking and reporting system for dealing with contraband. The report stated "BOP staff told us TRUINTEL was not designed to be a comprehensive contraband tracking system. We found that TRUINTEL does not provide a complete picture of contraband recoveries because certain contraband may not be entered and multiple contraband items may be entered as only one item" (OIG, 2016, p. 1).

DRONE CRIME INVESTIGATION AND PROSECUTION ACHIEVEMENTS: THE "OPERATION CELLMATE" CASE

The Operation Cellmate case began in 2014 and may have been the most significant gang drone smuggling case yet. The leader of the drone operation was clearly a gang member and his drug enterprise worked with other gangs operating in Georgia prisons as well as working with a drug cartel supplier for large amounts of methamphetamine. The leader was Daniel Roger Alo, aka "Marco Polo", aka "Boss Man", aka "Lo", aka "Uh No", known to be affiliated with the Ghost Face Gangsters, a national prison gang.

At the time of the drone smuggling activities that Alo was involved with, he was already serving a life sentence for kidnapping and shooting a physician named Patrick Mullen and other charges (armed robbery, etc). He was a career criminal with numerous priors dating back to the age of 17.

Operation Cellmate represented the teamwork between the U.S. Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) and the Georgia Bureau of Investigation (GBI) when

they learned that an armed gang operated from within the Georgia Department of Corrections facilities headed up by Alo. Alo used other gangs to assist with operation, including Bloods and Gangster Disciples and connections for supply as well to a Mexican drug cartel. One oddity, an inmate who had won $3 million in the Georgia lottery, Ronnie Music, used some of his lottery winnings to help subsidize to invest in the methamphetamine trade and was an active part of the drone smuggling operation.

It is significant that the operation was embedded within a large national American gang, specifically the Ghost Face Gangsters, and that he worked with other gangs like Bloods, and Black Gangster Disciples, distributing methamphetamine across several states, and having a clear linkage in terms of drug supplies to the transnational gang known specifically as the Sinaloan drug cartel. The Sinaloa Cartel is the transnational organized crime organization previously operated by the notorious Joaquin "El Chapo" Guzman.

It is significant that Operation Cellmate focused on the drone operations of Alo, because Alo was serving a life sentence at the time for a violent criminal conviction at the Calhoun State Prison located in Morgan, Georgia — the same prison where in 2013 the first known drone smuggling incident occurred. Alo's operation became large enough that it did not just distribute drugs to inmates in the one prison, it distributed drugs outside of prison including in the states of Tennessee, Virginia, and elsewhere.

The drug dealing operation run by Alo was known for compromising correctional officers to help with the smuggling of contraband into prison. In one seizure in September 2015, agents seized 11 pounds of crystal methamphetamine, numerous firearms, and more than $600,000 in cash in a sting operation directed against the gang. The Alo gang did have some communications on Facebook. So checking the social media is an essential for investigating persons involved in drone smuggling. Their operation also made extensive use of Green Dot cards for financial transactions in their efforts fo conceal income sources; Western Union was used for money transfers as well.

There were 15 firearms seized during the Operation Cellmate investigation, several of which were stolen or had their serial numbers defaced or obliterated. Thousands of rounds of ammunition were confiscated. Overall, 15 pounds of crystal meth were seized, along with multiple vehicles and two drones.

On September 30, 2016 Alo was one of the 16 defendants named in a 25 count federal indictment on drug trafficking charges.

Alo's co-defendants included: Amberlie Wright (23), Dallas, GA; Jason Prince (30), Jesup, GA; Miranda Michelle Flowers (42), Jesup, GA; Raymond Jarred Wilder (33), Jesup, GA; Angelo Occhiuzzi (35), Jesup, GA; Jason Lee (35), Patterson, GA; Angela Pope (30), Jesup, GA; Marquez Morehead (33), Memphis, TN; Melvin Jackson (27), Jesup, GA; Lawrence Larry (29), Jesup, GA; Davantaye Pittman (22), Jesup, GA; Irvison Fernandez Perez (21), Jesup, GA; and John Brian Schuyler (44), Waycross, GA.

On January 23, 2017 the defendant Alo pleaded guilty for his role in the drone smuggling operation.

Alo has a permanent jailhouse tattoo of a "devil" figure on his shoulder. At his sentencing hearing, Alo testified that what it meant was the "markings of the high cost of low living". On July 13, 2017 Alo was sentenced to 29 years in federal prison.

At the Alo sentencing, acting U.S. Attorney James D. Durham stated “Even the bars of a state prison cell have not deterred Mr. Alo from committing horrendous crimes. From a federal prison cell far, far away, it appears Mr. Alo will now have most of the rest of his life to ponder the high cost of low living”.

It is significant as an “outcome” for this case that within a year of indictment all 21 defendants ended up pleading guilty and ended up accumulating a total of 170 years in federal prison.

Those investigators and prosecutors involved in Operation Cellmate were honored and recognized in a special national award from the Organized Crime Drug Enforcement Task Force (OCDETF) where it was acknowledged that the Operation Cellmate investigators overcame significant technical obstacles. On March 7, 2019 the following persons were therefore recognized in this award for their achievements in the Operation Cellmate case: E. Greg Dilluly Jr., Assistant U.S. Attorney, Southern District of Georgia; Tania Groover, Southern District of Georgia; Theodore Hertzberg, Assistant U.S. Attorney, Northern District of Georgia; Special Agent Thomas J. Crawford II, BATF, James C. Turner, Special Agent, BATF; Christa K. Morgan, Forensic Auditor, BATF; Richard Ruka, Forfeiture Investigator, BATF; Bobby Banks, Special Agent, GBI; Special Agent Robert L. Livingston, DEA; Special Agent Christopher J. Atkins, DEA; Keith Lank, U.S. Marshalls Task Force Officer, Georgia Department of Corrections.

DRONE CRIME INVESTIGATION ACHIEVEMENTS: THE MUZZICATO CASE

In the spring of 2019 a series of loud explosions rocked the otherwise quiet area of Washington Township near Philadelphia nearby the residence of Cassandra Smith. Smith was the victim in this case as she was the former girlfriend of the defendant, Jason Muzzicato (45) from Bangor, Pennsylvania. Smith secured an order of protection against Muzzicato for stalking and threatening her.

Three undetonated bombs were discovered in early 2019, believed to have been dropped by a drone. Eight different explosions occurred during this time period, again believed to be the explosive devices dropped from a drone.

Muzzicato was charged for illegally possessing guns, homemade bombs, and unlawfully operating drones. He used a DJI Model Phantom 3 unmanned aerial vehicle (drone). He was caught with seven improvised explosive devices or homemade bombs and ten firearms including AR-15 rifles and semi-automatic pistols. He was regarded as being in unlawful possession of the firearms because he was an unlawful user of a controlled substance (methamphetamine) and because of the court order for protection issued. He was an admitted meth addict.

Muzzicato had developed and improvised the explosive devices to be held one at a time by a string from the drone. It was not clear from the information made public what type of detonation sequence and procedure was used. But one fact was clear: the landlord took responsibility to respond to the series of explosions by installing a security upgrade that resulted in an explosion about thirty feet in the air occurring on a video recording. This video of an explosion happened in April, 2017.

It was the belief from the federal prosecutor that Muzzicato was the offender who used his drone to drop a bomb that exploded near his ex-girl friends residence.

In June, 2019 Muzzicato was arrested and charged with possession of firearms by a person

subject to a domestic violence protective order and with possession of an improvised explosive device.

September 3, 2019 Muzzicato was indicted for possession of firearms and homemade bombs while using a controlled substance (meth) and knowingly operating an unregistered aircraft. Muzzicato faced he liability of serving 33 years in prison if convicted on all counts.

December, 2019, Muzzicato pleads guilty to possession of firearms while he was subject to a protection from abuse order, possessing unregistered firearms, and flying an unregistered aircraft.

September 24, 2020 Muzzicato is sentenced to five years in prison and three years of supervised release.

"With this combination of homemade bombs, guns and a drone, this defendant terrorized an entire community", said First Assistant U.S. Attorney Jennifer Arbittier Williams. "His blatant disregard for court orders, the law and others' personal safety made him a true threat, and we are grateful to our law enforcement partners tht Muzzicato was identified and arrested before anyone was physically hurt. Our Office will continue to work with our partners to ensure the security of our communities is not threatened by people who hide behind a remote control".

While police were able to search the home and business establishment owned by Muzzicato (an auto repair shop in Bangor), they found two drones. But testimony in court showed that for he main drone, the DJI Model Phantom 3, an FBI agent testified that the two memory cards that should have normally contained records of the drone's flight history, both cards were blank in the drone recovered from Muzzicato. Muzzicato testified that the phone app used to control the drones also records their flight history, and he flat out denied every flying his drones near his ex-girl friends house.

The lack of any images stored on the memory cards of Muzzicato's drone implies an ability to format the memory cards so as to erase any previous history. It is significant that no data of any kind was found on the two drone memory cards.

It is significant as well about Muzzicato's personal vehicle (Miller, 2019). A truck at his home was equipped with special features. One toggle switch operated an action that dropped nails on the roadway. Another switch could release paint thinner. Another switch would release ball bearings on the roadway. Obviously, owning a car repair shop, Muzzicato had higher level mechanical skills.

The building that was the target of the drone bombing campaign was owned by Charles Carcione, who described an 18-month period of living in hell because of the bombings. Recall, the only video evidence of the drone dropping a bomb from above is that from Carcione's surveillance system put up to protect his tenants. After that first explosion captured on video, another occurred a few days later, this time the sky rained nails. This would suggest that there is skill-set transference in the behavioral profile, because "dropping nails" on the roadway was a technique he used by equipping his truck to do this. The nails from the drone were more like that of a fragmentation grenade, being dispersed by an explosive device some how detonated in mid-air above the residential target.

"I heard it", said Carcione "I didn't know what it was at first, but it literally rained nails". Carcione reported that neighbors nearly stepped on unexploded bombs found on the ground in the light of day (Perez, 2019).

DRONE INVESTIGATION ACHIEVEMENTS: THE KINSER CASE

When an intact drone is discovered, with its payload, an enormous amount of forensic evidence is available for analysis. So treat the material of any drone discovery like it was an IED and do not contaminate the evidence, get it in line for lab analysis. A good example would be the superior drone investigation by the Nebraska State Patrol (NSP) on the Robert M. Kinser drone recovered at the Lincoln Correctional Center. The NSP computer crimes division analysis of the drone and its payload revealed the identity of the drone owner by extracting photographs, movie files, and Global Positioning System (GPS) information associated with the photographs. The drone was discovered by a work detail inmate on Feb. 26, 2018 and then through the NSP investigation traced to its owner, Robert Kinser. Kinser was convicted in 2020 by a plea of guilty to attempting to distribute controlled substances and convey contraband to an inmate. The plea deal made him eligible for up to four years in prison at sentencing. In August, 2020, Kinser was sentenced to two years in Nebraska's prison system for the drone crimes.

By definition, the Kinser case is a gang/STG crime for purposes of classification or analysis. Recall the definition of a gang/STG: a group of three or more persons, formal or informal in nature, that recurrently commits crime. Four persons are shown to have been prosecuted in the Kinser case. In theory, there are a lot of others in less substantial roles that could have also been charged.

The key to this investigation was the metadata available in any of the digital memory storage devices that may be connected to the drones operating system. It typically has photographic evidence in the form of still photographs and video clips. The data card for a drone will hold the photographs. There may be GPS data as well on the data card.

Kinser also left fingerprints when he used a small piece of tape to conceal the light from being emitted on the drone's navigation lights — apparently in the modus operandi of a drone flight by Kinser, it was a night mission. If you do not cover up the navigation lights, it is easy to detect from observers on the ground.

The judge in the case also had some words to add. Lancaster County District Judge John Colborn sentenced Kinser in August, 2020 having him serve two years in prison plus 18 months supervision.

"This isn't just delivery of marijuana", Judge Colborn said, "this is delivery of marijuana into an institution with a drone. We just can't have people dropping things into our penitentiaries with drones" (Yasvinski, 2020).

Many other things can add to the effectiveness of this kind of investigation. Correctional managers need to make sure they establish a widely advertised anonymous tip line to report any information relating to the safety and security of its correctional facilities, such information needs to be frequently distributed and displayed for all visitors to the facilities. And the tip line number should be prominently displayed at the departments website as well.

DRONE INVESTIGATION AND PROSECUTION ACHIEVEMENTS: THE FORT DIX CASE

The Fort Dix case refers to the series of drone smuggling events occurring at the Fort Dix federal prison in Burlington County, New Jersey. First load arrived in the early hours of July 26, 2018 and contained: 35 syringes, 15 cellphones, 30 phone chargers, drugs and pills, and a box of

Just for Men hair coloring. According to the arrests made in the case, additional flights would occur on Oct. 30, 2018 and during 2019 on April 16, Sept. 26, Oct. 1, and Nov. 20 of 2019.

This was an FBI case and resulted in the charging of two persons on March 13, 2020. Those two charged with conspiracy to smuggle contraband and defraud the U.S. and one count of smuggling contraband into a federal correctional facility were: Nicolo Denichilo (38) of Jersey City, NJ; and Adian Goolcharran, aka "Adrian Ajoda", aka "Adrian Ahoda", (35) of Union City, NJ were each charged with conspiring to use a drone to smuggle contraband into a federal prison. It became clear from the evidence seized that the drone payload contained highly sought after items in the prison inmate underground economy: to wit --- marijuana, steroids, syringes, cell phones, and cell phone accessories.

In the federal system, the conspiracy to smuggle and defraud offense carries a five year prison sentence, and the one act of smuggling contraband carries a one year sentence. So in sum total, the arrested face a total of six years under this complaint.

Denichilo was arrested on March 12, 2020 and released on a $100,000 unsecured bond. While at that time, Goolcharran remained at large, until he surrendered to authorities and appeared in court on March 17, 2020. Goolcharran also made his unsecured bond for $100,000.

Among the items that were collected as evidence in the drone smuggling were the following: marijuana, steroids, more than 160 cellphones, 150 SIM cards, 74 cellphone batteries and chargers, 35 syringes and two metal saw blades. Forensic evidence quickly surfaced for both suspects. Items are often grouped or packaged together in drone shipments, using plastic bags, and that is where Denichilo left a finger print. And Goolcharran's DNA was detected and traced to him from a small piece of electrical tape found on the drone recovered in the July 2018 drop at Fort Dix.

Investigative leads also emerged. Regular traffic stop information showed on the same day as a drone drop in April 2019 that Denichilo and Goolcharran were in the same car in a radius of five miles from Fort Dix. If you know a potential launch site for a drone near the prison facility, that is a good place to have surveillance. So on March 7, 2020, a person fitting Goolcharran's description and another man were observed launching and flying a drone from a site in close proximity to the Fort Dix prison. And, shortly after the March 7, 2020 drone flight law enforcement obtained evidence of Goolcharran bringing multiple drones to a store for repairs, including a broken drone. Evidence showed Goolcharran was the main pilot for the Fort Dix case drone incidents. Denichilo's role in this division of labor was to support the logistics of getting in and out of the zone they would be working in, the Fort Dix federal prison.

The two suspects were feeling the heat. But they kept up the drone flights and on March 12, 2020 the feds got lucky. A drone had been sited near Fort Dix. Investigators were ready and dispatched to the launch area, now known to authorities. It was a wooded area nearby the prison compound. When authorities arrived at the drone launch area, Denichilo and Goolcharran were still there, but upon seeing police, both fled. Denichilo was apprehended after a short chase, he was founding hiding in a ditch near the launch site.

Evidence immediately emerged from the drop cargo itself — fortunately it was intercepted after an inmate took possession of the cargo. The drone cargo contained 34 cell phones, 51 SIM cards, and other cellphone accessories.

Because both suspects tried to rapidly flea the launch area, they left behind an SUV that

agents quickly seized from the launch site. In the back seat of the SUV was the drone itself that they had just finished flying.

But one more piece of the puzzle remained to effectively investigate and prosecute this case — the inside man. An operation such as the Fort Dix drone case involves a modus operandi of coordinating a drone drop with someone inside the facility such as an inmate using an illegal cellphone himself. This way the drone operator can have constant real time communication with the inside man whose role it is to intercept the drone payload and secure it for purposes of distribution. It is simply a matter of telling the man on the inside "coming in now for the drop, drop made, later homie". Or texting the inside man to the effect "just arrived, made drop, talk 2m. Homie".

Two more arrests would be made in October, 2020 that would pretty much wrap up the case.

First came the arrest of Jason Arteaga Loayza (29), aka "Juice" from Jersey City, New Jersey on October 12, 2020 who was charged with conspiring to smuggle contraband and one count of possessing with intent to distribute a substance containing heroin and fentanyl. Loayza therefore faces five years for the conspiracy to smuggle charge and an additional twenty years on the narcotics count.

Secondly, the charges on October 22, 2020 would start to wrap up the Fort Dix case with the final piece of the puzzle charged — the inside person. Johansel Moronta (27), of Linden, New Jersey was charged with conspiracy to smuggle contraband into a prison and one count of being a federal inmate and attempting to obtain contraband. Moronta therefore faces a total of six years in prison for the two charges. Moronta was an inmate at Fort Dix on Oct. 30, 2018 when a drone payload was seized, and evidence emerged that Moronta was the inside man, whose role in the division of labor was to secure the payload and distribute the contents.

A LESS SUCCESSFUL DRONE INVESTIGATION: THE OKLAHOMA STATE PENITENTIARY CASE

This was a night time drone crash at the Oklahoma State Penitentiary on or about October 26, 2015. The drone and its cargo were recovered. The drone crashed into razor wire on the prisons perimeter which sent the drone crashing to the ground where it was found upside down by a correctional officer. The drone payload was also seized. The drone payload contained hacksaw blades, a cell phone, cigarettes (Newport) and cigars, super glue, marijuana, methamphetamine and heroin.

A photograph in the memory of the drone lead investigators to interview the woman in the photo. The woman's name is never revealed but a gang member is quickly arrested. On November 11, 2015, police arrested Marquis Monte Gilkey (DOB 1-19-86), AKA "Spook Loc Gilkey", AKA "Spooky Gilkey" and charged him with multiple felonies: bringing contraband into a penal facility, conspiracy, kidnapping, and a gang-related offense (Perry, 2015).

The news story was that two women were involved. One who was a frequent visitor at the Oklahoma State Prison in McAlester, OK, claimed to have been kidnapped and forced to help Gilkey and his gang, the 107 Hoover Crips gang. The woman said she was forced by Wilson to buy the drone and help Gilkey practice piloting the drone and transporting it to the prison location. Another claim by the woman was that she always resisted Gilkey even though he had nude

pictures of her that he threatened to post on the internet if she did not cooperate. And, of course, the woman reported Gilkey as armed and threatening deadly violence if she did not cooperate in the elaborate scheme. Apparently, another 107 Hoover Crip member named Clifton D. Wilson (43) aka "Chili" was the inmate inside the penitentiary who was supposed to receive the drone cargo. Both Gilkey and Wilson are high ranking members or hold leadership in the gang.

Gilkey had an extensive prior record including imprisonment, but on January 22, 2016 Gilkey was released from jail on a personal recognizance bond.

On April 7, 2016 all charges were suddenly dropped in the case (Brewer, 2016). It was said at the time that further charges were pending and that the investigation was still underway, but the fact is no such new charges, arrests, or convictions ever materialized. The statute of limitations has long since run out of time on this case.

COVERT INDICATORS OF POSSIBLE DRONE SMUGGLING INVOLVEMENT:

*** Large quantity purchases of cellphones, cellphone chargers, cellphone batteries, SIM cards.

*** Identify the public parks and recreation areas within a five mile radius of the correctional facility; be on the look out for drone users practicing there within range of the prison, or doing recon on any special geography. Drone user profiles show they like to do practice runs and typically pick parks and public recreational areas they can get ready as close as possible to the correctional facility target.

*** Identify the drone repair shops in your area. By pattern and prior behavior, the profile indicates a drone operator typically has more than one drone. They are likely to be needing constant servicing such as blades and other repairs needed.

*** Correctional officers reporting a sudden uptick in drug supplies inside a prison may be an indicator of recent drone delivery where now the drug network is flooding the prison drug user market with their product. Rapid new infusion into the drug supply may signal drone or other significant smuggling success.

MOST COMMON TYPES OF CONTRABAND SMUGGLED INTO PRISONS AND JAILS BY DRONE

Cellphones and cellphone accessories (chargers, USB charging cables, batteries)
SIM cards
Marijuana shake or bud
Disposable vape pens
Tobacco and Cigars and rolling papers
Cannabis vapes and gummies
Shatter
Hash
Zanax
Fentanyl
Oxycodone pills
Hydroxycut drink mix
Subonone Sublingual Film

Pills and Drugs
Vials of injectable drugs
Syringes
Super Glue
Disposable cigarette lighters
Pornography
Steroids
Chewing gum
Special personal hygiene items not readily available to inmates (hair coloring, etc)

DRONE COUNTERMEASURES

In recent years, a long list of vendors have emerged offering drone detection services and software and monitoring/reporting systems. Also called "drone mitigation", historically it can be as low tech as putting up a mesh-style net making it impossible for a drone to penetrate into the inner air space of a prison yard. The problem is that they do not have to pilot the drone into the prison yard and land, they can just drop the payload from above. The FAA is currently testing some of the drone mitigation vendor products. Agencies that we should have already heard from on evaluations of these countermeasures have been silent.

Because most drone incidents occur at night, some correctional agencies have turned to the use of thermal surveillance cameras as an aid in detection (Cahill, 2014). Thermal imaging provides a detection advantage, for sure, if there are staff to exploit the information.

October, 2020 a prison in Munich, Germany tests the use of a special single shot compressed gas activated "net gun" about the size of a shoulder fired grenade launcher that launches a fine-mesh net into the air space of a drone causing an instant take down effect. Drone anti-measure reported successful.

Training a bald eagle to attack drones has also gone to the simulation testing phase in The Netherlands (Holley, 2016). A short video clip shows the eagle successfully attacking a hanging stationary drone device and carries it away within a large enclosed structure (https://www.washington.com/news/worldviews/wp2016/02/01/trained-eagle-destroys-drone-in-dutch-police-video/). The eagle teaches us lesson one about the effectiveness of drone countermeasures: don't necessarily assume a drone mitigation system was originally developed and fully tested in the real world of corrections.

There are a lot of legends told about eagles, but this one is true, where it was documented by witnesses, forensic evidence, and media coverage that an American eagle attacked an expensive government drone that was working on shoreline erosion for a Michigan state environmental agency at the time (Brown, 2020). It was a professional, expensive drone, a Phantom 4Pro Advanced, valued at nearly a thousand dollars, piloted by state employee Hunter King. On or about July 14, 2020 the government drone was flying at a speed of 22mph at a height of 162 feet off the shoreline area of Lake Michigan in the Upper Peninsula. Eagles normally eat fish and can fly 45mph in straight flight formation and 99mph dive speed. An American bald eagle's talons are very powerful, they have the grip strength of 400 pounds per square inch, or about ten times that of the human hand. That day, we don't know really why, but the eagle attacked the drone, instantly ripping off one of its rotors, sending the government drone into a

deadly downward out of control crash and splash where it promptly sank to the bottom of Lake Michigan. Lesson two from the eagle: just because an eagle can do it does not mean we want to seriously train them to attack a drone.

ASSISTANCE TO CORRECTIONAL AGENCIES TO COMBAT DRONES

Drone countermeasures are now important considerations in policy and law for all correctional institutions due to the rise in the abuse of drone technology to smuggle illegal contraband into correctional facilities. More often than not, such drone smuggling operations are financed and controlled by a gang or security threat group or drug trafficking organization. Drone shipments are simply an extension of an already existing economic relationship that gangs have with prisons — if there are any illicit activities or functions in the underground economy, then a gang or STG will be seeking to control and operate such "prison hustles".

The Federal Bureau of Prisons (BOP) being the largest single correctional system in the United States is well regarded as the most professional and better funded as well. By February, 2020, the federal BOP had received $5.2 million is special funding to among other things pay for drone detection and mitigation systems (Vincent, 2020). Because it is a relatively new problem the BOP drone report has summarized it this way — the DOJ and BOP are "in the early stages of researching and evaluating a multitude of technologies and solutions offering both affirmative use and counterdrone capabilities" (see James Vincent, 2020).

The Federal Aviation Administration (FAA) is now also more directly involved due to rising concerns about evaluating drone mitigation technology (Huber, 2020). A variety of private sector companies offer a wide spectrum of services, technology, and equipment for purposes of drone mitigation. But as this is a new area, there is no single method or company that has really been identified as the leader in this field. In August, 2020 the FAA announced it was going to evaluate ten different drone mitigation technologies. This would be a service in furtherance of the FAA's Airport Unmanned Aircraft Systems Detection and Mitigation Research Program. The evaluation would begin at the William J. Hughes Technical Center in Atlantic City, New Jersey and then spread to four additional U.S. airports.

In 2016 the National Institute of Corrections broadcasted a 2016 Virtual Conference entitled "Drones: Implications for Corrections". A full transcript of the virtual conference along with other useful information is available on-line at the NIC website: https://nicic.gov, use the search bar to look up "drone". We would definitely recommend the 2016 Virtual Conference on Drones transcript.

We highly recommend reading the "Audit of the Department of Justice's Efforts to Protect Federal Bureau of Prisons Facilities Against Threats Posed by Unmanned Aircraft Systems" a redacted report released on September 15, 2020 (OIG, 2020).

At a minimum, state facilities need to work with their legislators to pass state drone laws, like Georgia Senate Bill 6 which on April 28, 2019 Georgia Governor Kemp signed into law. Target harden by having a state law making it a crime to fly a drone near a prison or use a drone to deliver contraband to a correctional institution. The language of the Georgia state law can be reviewed at: legis.ga.gov/Legislation/en-US/display/20192020/sb/6

CONCLUSION AND PREDICTION

Constant vigilance is the theme of the day when it comes to what is needed to target harden a correctional facility from the threat of drones smuggling contraband for the inmates. In routine social surveillance everyone in today's environment needs to be on alert for civilian vehicles operating near their correctional facility including private property and business locations, parking lots, shopping areas, any place where a pick-up or van could pull up and launch a drone.

This is a relatively new problem, but it is a growing problem. We can certainly predict that street gangs will make use of drone technology in a variety of ways in the future. So our prediction is gangs will use drones to supplement traditional security measures to protect their drug distribution systems, that gangs will use drones for counter-intelligence purposes against police and rival gangs, and the same way the Internet provided a new forum for gang conflict, drones will be used to escalate ongoing rivalries and the myriad of special conflicts that gangs have historically had can be addressed by drones, as well as for intimidating crime victims to not testify in court. Some of the lessons learned in this study help to shed light on ways that gangs, OMC's, and threat groups may behave in the future as they discover and begin to use drone technology.

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