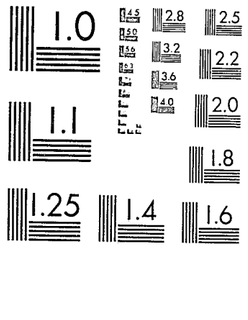

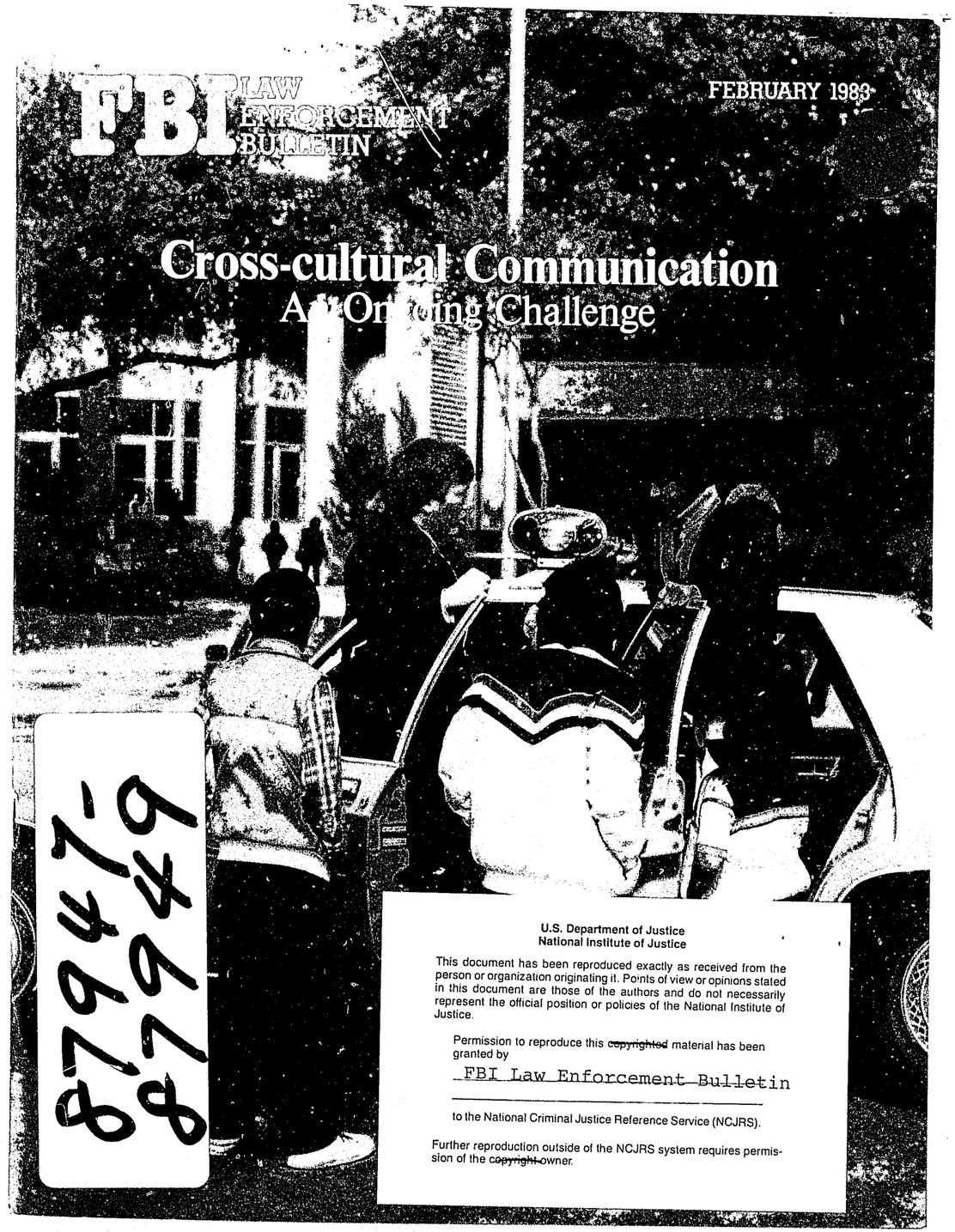

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Aerial Surveillance to Detect Growing Marihuana

By
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Domestic marihuana, once considered a minor problem, is rapidly becoming a major concern of Federal, State, and local law enforcement officials. With increased emphasis being placed on smuggling activities, those involved in marihuana trafficking are turning to domestic production to meet the demands for the product.

Many rural areas of the country are ideal for the cultivation of marihuana. Over the past decade, the marihuana growers have become so sophisticated that they are now producing a product which, in many cases, is superior to imported marihuana.

Inset photo depicts the greenhouse operations that growers have resorted to as a result of previous years of aerial surveillance. This operation yielded 256 growing plants (12' to 14' tall) with green weight of 550 pounds. Entire operation is under one roof and was found as a result of aerial surveillance.

Mr. Williams

Marihuana is adaptable to almost any area, provided it receives a minimum amount of care, cultivation, and fertilization. Fortunately, for those charged with locating and destroying the illegal substance, marihuana needs sufficient amounts of sunlight to flourish. Because of this characteristic, the airplane has become an indispensable enforcement tool.

In the past, the detection of growing marihuana has been mainly dependent upon intelligence information from confidential sources and "plain luck." Even after receiving information, it is often difficult, if not impossible, to locate growing marihuana, the reasons being both logistical and legal. In rural areas, the logistical problems become especially apparent with vast expanses of forest, fields, and swamp land. The airplane provides a method of covering such areas that may otherwise prove inaccessible.

Selection of Aircraft

The best aerial surveillance aircraft is the single engine, high-winged, fixed-gear plane. The high-winged craft is recommended because of excellent downward visibility and the ability to photograph from open windows with minimum obstructions. The Cessna 172, which has a sufficient payload and excellent slow-flight capability, travels at approximately 70 knots (80 mph) in slow-flight configuration (10° flaps, 1,800 rpm, trimmed for level flight). This speed allows for safe flight, permits ample time for ground observation, and is suitable for aerial photography when the proper equipment is used.

Pilot and Observer

The pilot should be certified in the aircraft he will be flying and be proficient in slow-flight maneuvers. Since his primary responsibility is to fly the aircraft, which includes scanning for other aircraft that may be in the vicinity and for terrain and manmade obstacles, a trained spotter or observer should be assigned to fly with him. As in any endeavor, teamwork pays off. The same pilot/observer team should be used whenever possible, since they learn to work together and know what to expect from each other.

Training

Before launching a mission to locate and destroy growing marihuana, it is necessary to train those persons who will be involved in the actual search, ideally by taking them to a location where growing marihuana has been abandoned and is about to be destroyed. Trainees should be allowed to examine the marihuana for as long as necessary so that they can compare it to the surrounding vegetation and note the color difference, which is especially apparent if the marihuana plants have been irrigated and fertilized. They should also be instructed to choose a nearby landmark, e.g., tree, fence, etc., in order to identify the location from the air. After this exercise, the group should then be flown over the same location for the purpose of observing the growing marihuana from the air.

This method is more successful in instilling confidence in observers and pilots than attempting to first spot the marihuana from the air. The usual response to the "flying first" method is, "I think I saw it," which reduces positive reinforcement for the trainee and feedback to the instructor.

If it is not possible to take trainees to a location where marihuana is growing, the next best method is to assign experienced persons to work with the trainees in order that suspected locations may be verified when seized at a later time. Confidence develops by reinforcement which occurs when marihuana spottings have been confirmed.

Detecting Growing Marihuana

The ability to detect growing marihuana is attributed to three factors—color difference, location, and anything that appears "out of the ordinary." However, in most cases, marihuana plants will be detected not by a single factor but by a combination of all three.

Color Difference

The color difference is the most difficult of the three factors to explain, although it is usually apparent between growing marihuana and surrounding vegetation. "Shade variation" is actually a better term to explain this difference, since we are usually referring to green marihuana plants surrounded by other green vegetation.

The rational explanation for this variation in color is that growing marihuana commonly enjoys certain attention that the surrounding vegetation does not receive, such as irrigation, fertilization, and cultivation, resulting in new growth and a healthy appearance.

What is meant by a different color of green? Is it a lighter shade of green or a darker one? These are difficult questions to answer, since in some areas, the marihuana will be of a lighter shade, while in others, it will appear darker. Experience will help the observer to detect plants based on color difference, which is responsible for the majority of marihuana sightings made.

Location

The discovery of a "garden" in an unlikely area will generally demand closer scrutiny. Marihuana plants are often found in areas that have been cleared out of a thicket of trees. The obvious reason for this is to conceal the plants from detection on the ground. However, while this method may be very successful for that purpose, it is a welcome sight to the aerial observer.

Things "Out of the Ordinary"

Although the location factor and the out-of-the-ordinary factor are sometimes closely related and overlapping, there is a distinction between the two. For example, on several occasions, flower pots had been spotted in a wooded area some distance from any residence. It was subsequently determined that the pots contained growing marihuana plants. In each case, it was the appearance of something out of the ordinary that first drew attention to the location. On subsequent passes over the area, growing marihuana was observed in gardens in the woods. In one case, 1,049 growing marihuana plants were found in 10 different locations on the property. Yet, it was the flower pots that first caught the observer's attention.

Man has a certain need for order about him. It is human nature to arrange things in a pattern. Mother Nature, on the other hand, does not have this need. Man will usually arrange growing things in rows, or in some cases, circular patterns. The appearance of these unlikely patterns in unusual places proves productive.

Searching Techniques

The morning hours are the best time of the day for aerial surveillance, especially during the summer months. Marihuana plants have a fresh, radiant appearance in the morning as opposed to a wilted appearance that often occurs on hot afternoons. Another consideration is that summer afternoons are generally hot, and at the altitude aerial surveillance is flown, the temperature becomes uncomfortable. Also, the air is more stable during the morning hours, which is especially beneficial if the observer is not accustomed to the bumpy ride that accompanies thermal activity.

Experience has shown that growing marihuana is easier to detect if the aircraft is positioned between the sun and the plants. In this position, the observer is looking at the sunlit side of the plant as opposed to the shadow side, which makes shade variation more apparent.

Persistence is especially important. If reliable information indicates that plants are growing in a certain location, the pilot/observer team should not give up easily, particularly in wooded areas where the plants may be visible from only one position. It may be necessary to fly over the location several times before the plants can be seen. Consider flying those locations at different times of the day to take advantage of the sunlight illumi-

"Although there are several cases in point, two court decisions . . . specifically address the issue of aerial surveillance and favorably view this technique. . . ."

nating the plants from different angles.

Before leaving the location, the observer should know exactly where the plants can be found. It is futile to locate growing marihuana if the observer cannot return to that location on the ground. Therefore, it is ideal for either the pilot or observer to be familiar with the area flown.

Altitudes for Aerial Surveillance

The surveillance altitude will vary, especially when flying over wooded areas where there are tall trees. Actually, a higher altitude is more beneficial, since the observer will have more time to scrutinize the area. However, even in slow flight, the plane is still traveling approximately 80 mph, a speed which does not allow time for extensive observation. Once a suspected spot has been located, it can then be observed from a lower altitude to confirm suspicions.

Most aerial discoveries are made from an altitude of 500 to 800 feet above ground level. Terrain and manmade obstacles may prevent flying at such altitudes in many areas. Federal aviation regulations specifically state the minimum safe altitudes for aircraft. Safety should be of foremost concern to the pilot and should not be jeopardized under any circumstances.

Time of the Year for Aerial Surveillance

The growing season of a particular geographic area will be important in determining when to look for growing marihuana plants. The most productive months are generally July and August. By then, the plants are maturing and are much easier to detect and identify.

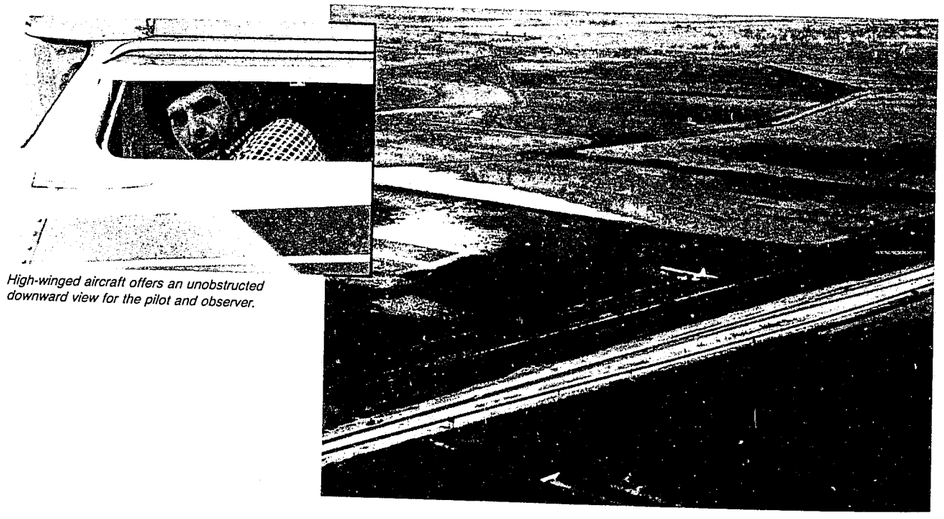
Flying earlier in the year, such as during the spring, may be beneficial in disclosing areas being prepared for planting. Intelligence information may be gathered for reflying during the peak growing season.

In most areas, the seedling plants are germinated in a greenhouse and then transplanted at the growing site. This method permits an earlier start for the plants and ensures a lower mortality rate for the seedlings.

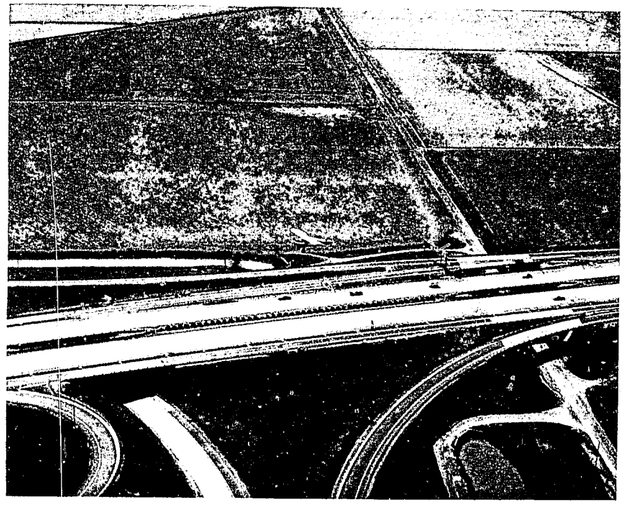
Intelligence Information

The key to locating growing marihuana plants is incoming intelligence information. A system should be established to start the flow of information to those who will be conducting surveillance, since the chance of success is much greater if aerial surveillance is begun in known areas of activity.

An educational program to inform officers in the field of whom to contact will bring surprising results. Often, these officers have received valid information but do not have probable cause for a search warrant. Aerial surveillance of these locations may provide the probable cause that is needed.



High-winged aircraft offers an unobstructed downward view for the pilot and observer.



The officer providing information should become involved in the operation as much as possible, even to the extent of being allowed on surveillance flights. This rapport is necessary for the success of any program. If it is impossible to involve the officer in followup work, he should at least be informed of the outcome of the case. This provides feedback on the information he has given and perhaps will help in establishing the reliability of an informer or source.

Intelligence information can save time and expense in locating growing marihuana. The smaller the area to be searched, the more likely growing marihuana will be located. However, when searching a large area, it is advisable to fly a grid pattern. Flying off course just a short distance will prevent the observer from detecting growing plants.

Well-traveled roads and footpaths in remote areas should be checked closely, since they will sometimes lead to a target. Possible drying barns and storage sheds should also be inspected, as well as irrigation systems in unusual locations. On some occasions, these facilities can be spotted before the growing plants can be seen.

Materials

A map or chart of the area to be flown and a general highway map of the county are essential items for aerial surveillance in order to pinpoint the location for followup work on the case. The sightings should be located on the map and marked for reference when obtaining a search warrant for the parcel or land. A legal description of the land is often possible by using these maps.

A 35 mm camera with a zoom lens and 400 ASA color film is an asset when taking aerial photographs for use in court. The recommended shutter speed is 1/1000 of a second or as near to that as possible. Because the plane is traveling at a high rate of speed, any movement causes blurry photographs. Extreme care should be taken to obtain clear photographs since color difference will be more apparent and will demonstrate to the jury exactly what was seen.

In addition to aerial photographs, pictures should be taken when the marihuana plants are seized. Not only are these photographs of value in court, but they also help to train others in surveillance techniques.

Legal Aspects

Once the marihuana plants have been located, it is time to decide which course of action to pursue. Hopefully, through followup investigation, an arrest and successful prosecution can result. Different jurisdictions pose different problems. Some jurisdictions will require a search warrant; others will not. If in doubt, the best course is to obtain a warrant, with the person responsible for detecting and identifying the suspected plants as the affiant.

A decision must also be made on whether to keep the plants under surveillance in an attempt to connect a defendant with the illegal crop or to destroy it in cases where long term surveillance is not possible.

The officer doing the aerial surveillance should work closely with the prosecutor to determine how the courts in the jurisdiction view aerial surveillance, since it may be necessary to be prepared to justify this technique in court. Although there are several cases in point, two court decisions, *State* v. *Davis*[1] and *United States* v. *DeBacker,*[2] specifically address the issue of aerial surveillance and favorably view this technique to detect growing marihuana.

". . . we [must] continue a conscientious use of aerial surveillance in order to preserve that avenue of detection in the battle against domestic-grown marihuana."

In *State* v. *Davis,* the trial court suppressed marihuana seized pursuant to a search warrant. The warrant was issued after the marihuana was observed growing on the defendant's property by a police officer engaged in aerial surveillance. The court found that the officer was in a fixed-winged aircraft, flying 600 to 700 feet above ground level during the surveillance. The area observed had at least 50 to 75 homes, a school, a medical clinic, and a store within a 1-mile radius. The defendant had posted "no trespassing" signs and had a locked gate on his driveway. The defendant's property was in a "wooded and secluded area."

The trial court concluded from the altitude of the airplane and the population of the area that the airplane was in violation of FAA regulations regarding the minimum altitude for fixed-winged aircraft.

The Oregon Appellate Court disagreed with the trial court's use of the FAA regulation as the determinative factor for establishing the parameters of fourth amendment protection in situations involving aerial surveillance. The appellate court stated:

> "We also find little attraction in the idea of using FAA regulations because they were not formulated for the purpose of defining the reasonableness of a citizen's expectation of privacy. They were designed to promote air safety. . . . The aerial observation did not violate the Fourth Amendment to the United States Constitution. *The marihuana was observed in plain view.*"

In another case, *United States* v. *DeBacker,* the court stated:

> "In what it views as a case of first impression in the federal court system, the U.S. District Court for Northern Michigan holds that a couple of surveillance flights over an 'open field' did not violate the landowner's expectation of privacy."

In this instance, the defendant moved to suppress evidence seized from his farm pursuant to two search warrants. He claimed that his privacy was violated when the investigating officers verified an informer's tip that marihuana was growing on the defendant's farm by flying over at a height of 50 feet.

The State police's aerial pass was first made at a height of 200 feet. Although the detective was sure that he had spotted marihuana plants growing in the defendant's fields, the plane made a second pass at 50 feet in order to take a closer look. Government testimony established that the plane's flight did not violate any law by flying this low to the ground.

Justice Hillman, in the opinion, stated:

> "I conclude that isolated instances of aerial surveillance over 'open fields' do not offend the Constitution. 'Open fields' are not areas in which one traditionally can reasonably expect privacy. . . . This is especially true in a case such as this where airplane flights over local farm lands and at low altitudes [200 feet] are not infrequent, though admittedly flights at 50 feet are unusual. Any pilot, commercial or pleasure-craft, might have observed the marihuana and notified the police.
>
> "Moreover, on balance, defendant's minor expectations of privacy do not outweigh the value to society in permitting such non-intrusive surveillance. The police were in a place they otherwise had a right to be, and defendant's fields were plainly observable from the air. . . . *The Fourth Amendment prohibits unreasonable searches and seizures, not all searches and seizures.*"

It is imperative that we continue a conscientious use of aerial surveillance in order to preserve that avenue of detection in the battle against domestic-grown marihuana.

FBI

Footnotes

[1] *State* v. *Davis,* 29 Cr L. 2175 (Ore. Ct. App. 1981).
[2] *United States* v. *DeBacker,* 27 Cr.L. 2479 (U.S.D.C. N. Mich. 1980).

END