AIRCRAFT CONTRIBUTIONS TOWARD GAME & FISH LAW ENFORCEMENT

Panel

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More time and money has been spent in locating game and fish law violators than in any other phase of law enforcement procedures. Game Wardens have always had too much country to cover and too few operating funds to adequately cover their assigned area of responsibility for surveillance purposes.

Regardless of the integrity of the officers, vast areas are left unattended simply because an officer can only be at one place at one time during his working day. This problem has been magnified by the ever increasing hunter and fisherman population. Aircraft has been utilized successfully to cover an area for various game and fish law violations that would have gone undetected. The reason being that aircraft observers can cover larger areas and have a larger field of vision than can observers on the ground who are limited in their travel areas. If the aircraft patrol is to be successful there are several conditions that must be considered and prepared for well in advance of the actual patrol.

First of all, the equipment is a primary consideration. Different aircraft may be needed for different purposes. If the aircraft is to be used to cover a large water area such as the Gulf of Mexico or at night over land areas then a twin engine aircraft is preferred because of the dependability and the safety involved. On the other hand, if the aircraft is to be used for low slow flying, then a single engine aircraft designed for the purpose is preferred. Fuel capacity is extremely important because when and if violators are observed, it is absolutely essential that the aircraft stay in the immediate area so as to direct ground units to the people believed to be violating the law. If the biolation is detected toward the end of the flight, then fuel could be extremely critical.

Proper radio communication is very essential in several areas during law enforcement flights. First of all the aircraft must be in immediate contact with ground units. Needless to say, the aircraft crew cannot possibly make arrests or seize physical evidence in the case. Ground units must be contacted by radio and directed immediately to the area involved. Radio communication with other law enforcement agencies are very beneficial especially in requesting assistance or reporting other type of violations detected on game law enforcement patrol. In several instances sheriff's offices and police agencies have apprehended game law violations when the game warden was not immediately available and the violators were in the process of escaping. In one such instance, two cars were night hunting together; the game warden caught one and a police agency caught the other.

Appropriate aircraft navigational equipment such as a Digital Distance Measuring Device (DME), Omni Directional Radio Equipment (VOR) for bearing information and during certain types of flights, an air-borne radar with mapping capabilities should be standard in law enforcement aircraft. This would be especially important in flights over the Gulf of Mexico for shrimp violations. A good pair of 7x50 Bausch & Lomb Binoculars or better should be carried for closer looks at suspicious situations. Very often the aircraft cannot get close enough to see what is going on without alerting the violators.

In view of the type of flight for most law enforcement patrols, the experience of the pilot is especially important. The pilot should have vast experience and especially low altitude proficiency. Most of the patrols involving law enforcement are either low

altitude or during some adverse conditions, either weather, night or over large water areas. The pilot must have the ability to testify in court as to the exact location of the violation. This can only be done by adequate research on the navigational aids listed above. The pilot should have a general knowledge of the area to be worked so as to maintain a flight plan and schedule. This is not essential; however, but is extremely beneficial in directing ground units to the area involved. Above all the pilot should fly the aircraft in a safe and prudent manner and allow someone else to look for violations.

Aircraft law enforcement patrol should not be scheduled without an observer on board during the entire flight. The observer must have an intricate working knowledge of the area scheduled during the flight. He must know what to look for, when to look for it and who would be in a position to make the actual arrest. The observer and pilot will run onto many situations that will not be connected with game and fish law enforcement or any law enforcement as far as that is concerned. In view of this, the observer must know the wildlife ranges and habits of the hunter and fisherman. Without this knowledge, the aircraft will send ground units on endless wild goose chases and sometimes allow actual violators to go without being checked. The observer must be in a position to evaluate the situation and determine whether or not ground units should be sent. One of the most common causes for wild goose chases is lovers, driving slow and then parking in remote areas.

Each flight should be scheduled. The schedule should include the area to be worked and the primary type of enforcement to be considered. Ground units should be briefed as to what the aircraft can do, how long it can stay up and what should be done when possible violations are observed. The ground units should be placed so as to be immediately available to the area of the flight schedule. The time element involved when a violation is first spotted and the officer arrives on the scene is extremely critical. In many cases, violators have returned to their camps or homes, whichever the case may be, and the game taken illegally is no longer available without a search warrant. Equally as important is the length of time the aircraft can stay up. If the aircraft is required to stay in the immediate area during the time the officer is enroute to the scene, then the flight schedule must be altered to cover less area for that particular time.

Weather has always been particularly important in both aircraft useage and in hunting and fishing activities. On the one hand, violators very often use adverse weather conditions to hide their illegal operations while on the other hand, adverse weather conditions create many problems for proper aerial surveillance. Some of the best night hunting cases have been made during bad weather conditions. During adverse weather conditions it is important that the pilot and the observer have adequate information concerning the area involved in the flight schedule. In the first place, normally during adverse weather, visibility is very limited and therefore difficult to observe violations over a great distance. Knowing where exactly to look and exactly what you are looking for at all times is imperative if the flight is to be successful. In some cases, violators have been detected, however, the pilot and observer have been unable to direct ground units to the area because they were lost insofar as exact locations is concerned. In any case, weather conditions and forecasts should be checked through the proper channels immediately before the flight and at intervals during the flight. Fog and low ceiling are both hard to cope with when they move into an area. If these conditions are apt to occur, then perhaps the flight should be postponed and rescheduled for a later date. The best time for night surveillance is a clear night with a light wind and either no moon or a quarter moon. Too much moonlight can obscure headlights or other hunting lights. If the atmosphere is clear, flashlights can be seen 20 miles. A clear night with no clouds or at least a very high ceiling gives the aircraft more patrol area simply because the observer can see better therefore more can be accomplished. Since aircraft cannot be operated each night either because of weather conditions, work schedules or budgetary problems then the most probable violation areas should be selected to be included in the patrol schedule. In many cases, certain types of terrain do not lead to good patrol areas because headlights are often hidden by trees, hills, vapor lights or high road activities. If the patrol schedule is limited, then these areas could be avoided so as to get the most good from the time spent with the aircraft.

The type of aircraft used in night time patrol is extremely important, although a little controversial. In any case, the aircraft should be equipped with long range fuel tanks and the necessary radio equipment to do the job. On the one hand, a high winged aircraft is preferred so as to provide maximum visibility both ahead and on each side. The low wing aircraft is preferred because while circling, the wing drops out of the way whereas the high wing aircraft will obscure the view. We feel that the high wing aircraft is better for overall operations. For safety and dependability, the twin engine aircraft is preferred; however, the twin engine makes more noise in flight than the single engine aircraft.

If the violators hear the aircraft circling, then they may cut off their lights and the case is lost. If the aircraft circles downwind then there is less likelihood that the violators will hear the aircraft and cease the operation. If they should hear the aircraft, they can go into their camp or residence or just cut off their lights, then the observer must be able to recognize different ranches, hunting camps or houses in the patrol area. The only way he will be able to do this is if he has worked on the ground in the particular area that is being patrolled.

CONTRIBUTIONS THAT AIRCRAFT CAN MAKE IN LAW ENFORCEMENT ARE UNLIMITED

1. More people means more violations.
2. Number of officers have not increased as rapidly as population.
3. Still too few officers to answer all needs and look for violations.
4. Aircraft can cover more area in one hour than officer can in a day.
5. Problem has always been locating violation.
6. More time spent here than all other phases of law enforcement together.

EQUIPMENT NEEDED FOR PROPER WORK

1. Digital Distance Measuring Device (DME).
2. Omni Directional Radio Equipment (VOR).
3. Airborne Radar with mapping capability.
4. Large fuel capacity.
5. Type of aircraft
   A. Different jobs require different aircraft.
   B. Some jobs can be done with any aircraft.
6. Radio on frequency with patrol craft or automobile.
7. Drop bouys or other location aids are helpful.
8. 7x50 Bausch & Lomb Binoculars.

PILOT AND OBSERVER

1. Pilot must have experience.
   (Especially low altitude proficiency)
2. Pilot must know how to operate instruments.
   A. Must be able to testify in court and must be able to explain to jury.
3. Pilot must have general knowledge of area to be worked.
4. Helpful if observer is Superviros.
5. Observer must have intricate knowledge of area to be worked.
   A. What to look for
   B. When to look
   C. Who to call
   D. Habits of wildlife and hunter or fisherman
6. Pilot and(or) observer must have working arrangement with men on ground or water.

SCHEDULE AND AGREEMENT ON HOW PATROL SHOULD BE WORKED

1. Ground or water officer should be briefed on how aircraft can be worked.
2. Should be briefed on what aircraft can do.
3. Should be placed so as to be most available when violations are spotted from the air.

4. Time element important from first sight to arrest.
   A. Length of time aircraft can stay up.
   B. Violator may quit and go home or hide evidence of violation.

WEATHER

1. Violators often use foul weather to further illegal activities.
2. Aircraft cannot operate in foul weather or if plane can fly, the visibility will not be good.
3. Some of the best cases have been made in bad weather.

USE OF AIRCRAFT IN NIGHT DEER HUNTING CONTROL

1. Type of aircraft
   A. Fuel Capacity
   B. Dependability (2 engines)
   C. Radio
2. Pilot and Observer
   A. Must know area better than any other type patrol
      1. Deer habitat
      2. Roads
   B. Lights only marker
   C. Must know individual ranches
   D. Must know hunter habits
3. Patrol plan *must be* made and coordinated with ground officers.
4. *Plan must* be made for handling violators.
5. Hunting sign to look for
   A. Flash of light from spotlight.
   B. Flash may be glow in fog or haze.
   C. Autos with right light set toward ditch.
   D. Slow autos.
   E. Fast autos leaving deer areas.
   F. Autos in areas at abnormal times.

USE OF AIRCRAFT IN NET CONTROL IN LAGUNA MADRE

1. Particular aircraft needed.
   A. Slow
   B. Low
   C. High Wing
   D. Radios
   E. Fuel
2. Observer must have very thorough knowledge of fishing activities.
   A. Time of year causes different fish movements.
   B. Water conditions cause nets to be used in different manner.
   C. Annual fish movements.
   D. Market in Fish.
   E. Water conditions and effect on men in boats.
3. Coordination with water officers.
   A. Time of patrol (start and end)
   B. Position of boat at start of patrol and follow aircraft to other areas.
   C. How to handle violators or nets that are found.
      1. May mark nets if more sets are found than can be picked up while aircraft is up.
      2. If one officer is handling violator, plane is to go to other area.
      3. Aircraft should keep up with activity but not too close.
4. Search of area for nets.
   A. Describe Laguna Madre.
   B. Look for cork line.
   C. Look for fish sticks.
   D. Set patterns.

E. Wind direction and velocity.
   1. How wind will affect nets in water.
   2. How nets are set in relation to natural obstacles.
   3. How wind and obstacle are used by fishermen.

5. Aircraft has been responsible for picking up net and catching violators.

USE OF AIRCRAFT IN SHRIMP PATROL

1. Shrimp law.
   A. Gulf Water
   B. Inland Water
2. Pilot or observer.
   A. Knowledge of Gulf Waters.
      1. Depth of water along coast. (4 fathoms)
      2. Up to date charts and navigation aids.
      3. Pilot knowledge of navigation aids and how to testify in court.
3. Coordination of flights with Gulf Patrol Boat.
   A. Length of coast worked by one boat.
   B. Explain 3 marine leagues in Gulf.
   C. Three (3) ports of call.
   D. Keep boat advised of shrimp boat fleet.
4. Type aircraft to be used.
   A. Twin engine over Gulf for safety.
   B. Navigation equipment very important.
   C. Day and night patrol and what to look for.
5. Knowledge of shrimp habits in Gulf and bays.
6. Ability to identify boats, home port and port of call.
7. Plan to handle violators.
   A. Secrecy of patrol boat.
   B. Supervisor or observer can arrange beach boarding, if necessary.

USE OF AIRCRAFT IN POLLUTION CONTROL

1. Type of aircraft.
2. Pilot and observer.
   A. Knowledge of known pollution areas.
   B. Ability ot identify different types of pollutions.
   C. Acid often clears water or if too strong will cloud water.
   D. Domestic pollution will often cause excess growth such as algae.

1. Type of aircraft.
   A. High wing.
   B. Slow flying with speed ability.
   C. Fuel Capacity.
2. Pilot and observer.
   A. Knowledge of wildlife population.
   B. Knowledge of hunted areas.
3. Coordination of patrol with ground officers.
   A. Must be placed so as to be effective when violation is sighted.
4. Plan for handling violators.
5. Suitable types of hunting for aerial work.
   A. Dove hunting.
   B. Quail hunting.
   C. Road hunting.
6. To maintain contact with hunters leaving area.

SUMMARY

Aircraft has been used in all types of law enforcement in South Texas.

1. Places and schedules
2. Multiple uses of aircraft
3. Economy as compared to equal results by ground officers alone.

We, in South Texas, have found the Department aircraft one of the most valuable tools we have in law enforcement. We believe that the correct aircraft with the right pilot and observer can do the job in any area if proper planning is done before the flight originates.

THE USE OF AIRCRAFT AS A TOOL IN GAME & FISH LAW ENFORCEMENT KENTUCKY LAW ENFORCEMENT

Purpose: To increase the miles the conservation officers' eyes can see, the distance his legs can step, and the length his arm can reach to apprehend the violator.

Equipment:

1. Aircraft (high wing, 4 passenger for night work) (2 passenger for day work) proper navigation equipment, 2 porta-mobile radios aboard (parachutes in Department owned aircraft).
2. Four automobiles equipped with 100 watt radio, spot light, blue flashing light and other equipment normally used by the conservation officer.
3. Base Radio Station.
4. Master map of the region blocked off in 25 mile square areas. (Scale approximately .4 of inch = 1 mile).
5. Set of maps of the region in 25 miles square blocks for each mobile unit manned by two (2) conservation officers.
6. Plastic overlay sheets blocked off in 25 mile square areas. This sheet has twenty-five (25) sections of five (5) mile square each and numbered. Each section is divided into four (4) equal parts and lettered A-Able; B-Boy; C-Charlie and D-David.
7. Navigation plotter Directional Measure Equipment (D.M.E.) and ruler for the base radio operator.
8. Flight record sheets.
9. Ten (10) power binoculars.

Personnel:

1. Aircraft pilot (instrument rated for night)
2. Observers (in aircraft)
3. Base radio station operator.
4. Mobile unit leaders.
5. Mobile unit assistant leaders.

Job Responsibility:

1. Pilot
   a. To fly the designated pattern as set forth by the Regional Director.
   b. Make decisions as when to conclude the mission due to weather, aircraft, or personnel conditions.
   c. Position the plane as directed by the observer once a possible violator has been observed (to enable the observer to keep the subject in view at all times).
   d. Take omni radio station and D.M.E. readings from pre-designated stations as directed by the observer.
   e. Conclude the surveilance when so directed by the observer or the base station operator.
2. Observer:
   a. Keep continued look-out for signs of violations.
   b. Direct pilot take omni radio station and D.M.E. reading when he has determined a subject should be inspected.
   c. Record the readings as given by the pilot.
   d. Contact the base radio station giving the following information:

1. Report when aircraft is airborne.
2. Report when aircraft is turning on each leg of the pattern.
3. Possible violation observed by the code name.
4. Omni radio station and D.M.E. readings.
5. Direction the subject is moving.
6. Direct the pilot as to the positioning of the aircraft so the subject will always be in view. This is necessary for continuity of evidence.
7. Take charge of pursuit communications when both the mobile unit and the subject are in view.
8. Keep the subject in view until the mobile unit has made contact (stopped the automobile) with subject.

3. Base Radio Station Operator.
   a. Receive from the observer the type of violation suspected, omni, radio station and D.M.E. reading, and direction the subject is moving.
   b. Record all information on the flight record sheet.
   c. Plot the location of the subject on the master map using the omni and D.M.E. readings.
   d. Assign the proper mobile unit to the problem giving the following information:
      1. Code name of the violation suspected.
      2. Number of the section and letter of the area where the subject is located.
      3. Stand by until the observer has the mobile unit and the subject in view and takes over pursuit communications.
      4. Plan the movement of other mobile units to be used to cut off the subject in the event he fails to stop.
      5. Be prepared to seek the help of the State Police in the event of a chase.
      6. Record all information on the flight record sheet.
      7. Maintain complete control over all mobile unit movements and communication except pursuit communications.
4. Mobile Unit Leader.
   a. In charge of unit.
   b. Conduct all communications from his unit.
   c. Plan roadway routes on his map to the section and the area assigned to his unit by the Regional Direcotr. Routing to the center of each section assigned is to be accomplished and written during the pre-mission briefing.
   d. He may delegate the following responsibilities to his assistant.
      1. Communications.
      2. Use of blue flashing light and spot light
      3. Recording of the car license number, make, model and color of vehicle.
   e. Make inspection and/or apprehension with the help of his assistant.
   f. Seize all evidence and give receipt with the receipts written on the citation.
   g. Immediately after leaveing the subject, write a complete case history naming persons, places, times, events and such.
5. Mobile Unit Assistant Leader.
   a. Assist the leader in maintaining proper routes.
   b. Carry out the assignment given by the unit leader.
   c. Look for the aircraft unless driving.
   d. During inspection and/or apprehension keep the subject positioned for the safety of the unit leader while he inspects and writes citations.

Communications:

1. All communications shall be by the radio call numbers of the unit leader only.
2. Prohibited is the use of any wording that might alert a monitor as to the following:
   a. Aircraft is being used.
   b. Names of towns, roads, churches or places that could give away the area being worked.
   c. Mobile to mobile communication.
   d. Mobile to aircraft communications except pursuit communications.
3. It is of utmost importance that mobile unit remain silent until needed.

Code Names:

1. Jacklighter
   a. Car head lights only - Bunny
   b. Spot light - Sweeper
2. Pre-season Hunter - Early bird
3. Hunter's Camp - Boll Weevil
4. Mobile Chase - Runner
5. Waterfowl Violation - Shepherd
6. Concentration of five (5) or more hunters or fishermen - Congregation
7. Commercial fishing Violation - Commercial
8. Baited Field - Trough
9. Fish Gigger - Spike
10. Coon Hunter - Ring Tail

Procedures:

1. All personnel assigned to the mission will be briefed as a group prior to the mission as follows:
   a. Target problem specified.
   b. Time mission will begin and end.
   c. Assignment of the mobile units to the sections and stand by station they will be responsible to cover.
   d. Each mobile unit will write the road-way routes from their stand by station to the near center of each section assigned to them.
2. Each mobile unit is to be on stand-by station at least 15 minutes prior to scheduled take off time of the aircraft. They will report their own call number, for example: "106 on stand by".
3. Mobile units remain on stand by station until directed otherwise by the base station.
4. Aircraft will fly the legs of the pattern at pre-planned compass headings to cover the block every five (5) miles, East and West - North and South.
5. When suspect is located and omni and D.M.E. readings are taken, the observer will give the base station the following information:
   a. Type of violation by code name.
   b. Omni radio and D.M.E. readings
   c. Direction suspect is moving, if mobile.
6. Base station operator will record same (5) on the flight record sheet including time observed.
7. Base station operator will plot the location of the subject on the master map and do the following:
   a. Assign the proper mobile unit giving the type of violation by code name, section number, and area where subject is located.
8. Mobile unit will record same on the plastic overlay sheet and will repeat message back to the base station.

9. The mobile unit will check his pre-routing of road-ways to the section and area involved and proceed as follows:
   a. At the fastest safe speed to the section and area.
   b. Look for aircraft and when spotted use the spot light or dimmer switch for identification.
   c. After recognition the mobile unit will follow the observers instructions until the subject is stopped.
   d. Approach the subject from the rear, if possible. Record license number, make, model and color of the vehicle.
   e. Attempt to stop vehicle with the blue flashing light. If unsuccessful, use spot light in rear view mirror. This should be done in a sweeping motion. Use siren, if available.
   f. When an assignment is given, all units not involved are to plan road-way routing to the section where the subject is located. This is essential in the event help is needed.
   g. When giving section and area use the phonetic alphabet as follows: A-Able; B-Boy; C-Charles; D-David (Example: Section 1 - area A-Able.)

AN ANALYSIS OF DEER SPOTLIGHTING IN VIRGINIA[1]

by

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ABSTRACT

We analyzed a 1969 questionnaire survey of law enforcement agents, four years of Commission records (1968-71), and conducted on-site interviews about 20 agents' deer spotlighting cases.

Two estimates suggest at least 600 and probably close to 9000 spotlighting incidents annually and that agents apprehend at least 2.9%.

Complaints occur at a rate of 3.9 per week from 1 October to 31 December. During this same period 86.3% of all spotlighting arrests are made. Only 0.44 deer were killed per case; a preference was shown for bucks. Rifles and shot guns were used equally and reflect general hunting use. Most vehicles used were late model sedans.

The average time of arrest was 11:37 p.m. The period from 8:55 to 2:19 contained 68% of all violations. In November, the peak month, occurs 45.5% of all biolations. From November 14 to 28, 30.8% of all spotlighting arrests are made. Spotlighting on Saturday is significantly higher than other days of the week.

Spotlighting occurred when the temperature averaged 27° F (60° max., 20° min.); arrests were made in rain or snow in only 10% of the cases.

Violators were residents (94.3%), not on strike or work layoff (7.14%). There was no correlation between spotlighting in a county and miles of light-surface roads, miles of all weather roads, ratio and square miles of rural to toal area, or legal deer kill.

Spotlighting occurred on public land in 14.3% of the cases, 85.7% on private land. The majority (90%) occurred from heavy-duty public roads. Most were traveling east on level (less than 5% slope) roads.

The even occurred 18.7 miles from the agent's house (13.5 miles, 1 s.d.; 60 max, 0.1 min). The nearest occupied house was 1.3 miles from the violation site (9 miles max., 100 yards min.). The average distance to theviolator's house was 34.3 (66.7 miles, 1 s.d; 450 maz., 0.1 min). Spotlighting occurred mostly in harvested corn fields surrounded by woods. The average field depth was 171 yards (148 yards, 1 s.d.). Violations would have been visible from the air in 95.7% of the cases.

The average age of the violator was 27. Women were present in 14.3% of the cases; children in 2.9%. The average group size was 2.8 (8 max, 1 min.). Everyday dress was worn in 61.4% of the cases. The violator was known by the agent in 31.4% of the cases. The violators were drinking or under the influence of alcohol in 32.9% of the cases.

Stakeouts were used to apprehend most violators. A chase ensued in 31.4% of the cases, 77.3% when a deer kill was involved.

Fines paid averaged $99.77 ($200 max., $31.75 min.). Convictions were obtained in 91.4% of the cases.

Needed research is suggested.

INTRODUCTION

Laws and regulations governing the taking of game, and their enforcement, have been traditionally used within wildlife management. A large potion of wildlife agencies' budgets are currently used for enforcement, and states have only an opinion about the effects of the enforcement on the success of the total management program. The enforcement program is a major factor in achieving the desired harvest, but in most cases it is currently operating at an unknown level of accuracy, or, if known, at a level that is

[1]The support of The National Rifle Association is gratefully acknowledged.